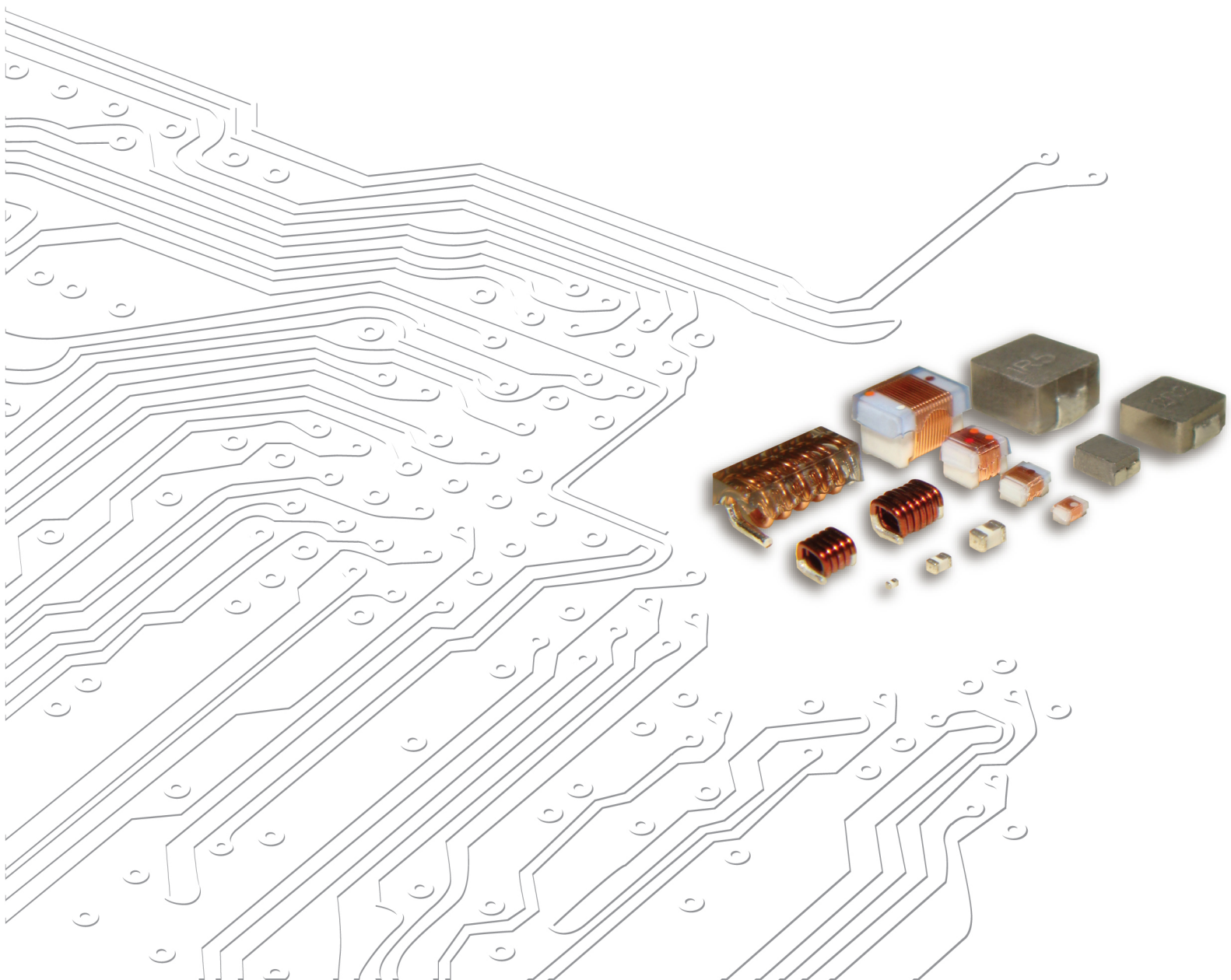
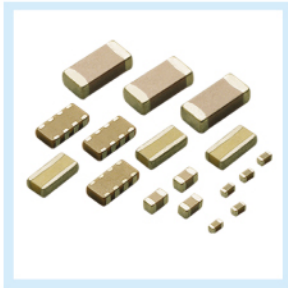


# 2015 Inductor

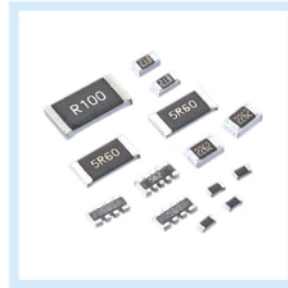
## Product catalog



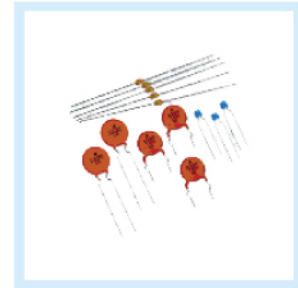
## Product Portfolio



**Multilayer Ceramic Capacitors (MLCC)**



**Chip-Resistor**



**Disc Capacitors**



**RF Device and High Frequency Inductors**



**Inductors**



**Varistors and SMD-Varistors**

## IEC-63 Nominal Resistance / Capacitance

<b>E1</b>	100																							
<b>E3</b>	100				220				470															
<b>E6</b>	100	150	220	330	470	680																		
<b>E12</b>	100	120	150	180	220	270	330	390	470	560	680	820												
<b>E24</b>	100	110	120	130	150	160	180	200	220	240	270	300	330	360	390	430	470	510	560	620	680	750	820	910
<b>E96</b>	100	102	121	124	147	150	178	182	215	221	261	267	316	324	383	392	464	475	562	576	681	698	825	845
	105	107	127	130	154	158	187	191	226	232	274	280	332	340	402	412	487	499	590	604	715	732	866	887
	110	113	133	137	162	165	196	200	237	243	287	294	348	357	422	432	511	523	619	634	750	768	909	931
	115	118	140	143	169	174	205	210	249	255	301	309	365	374	442	453	536	549	649	665	787	806	953	976

E6:  $\sqrt[6]{10} \approx 1.46$  E12:  $\sqrt[12]{10} \approx 1.21$

E1 series resistance: 1Ω, 10Ω, 100Ω, 1000Ω, 10000Ω, 100000Ω

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## Quick Product Information

Application	Type	Series	Range	Size (mm)			Quantity per reel	
				L	W	H		
RF Inductor	Wire Wound Ceramic Chip Inductors	WLCW1005	1nH ~ 100nH	1.19	0.64	0.66	4K	
		WLCW1608	1.6nH ~ 390nH	1.70	1.02	0.92	4K	
		WLCW2012	2.2nH ~ 820nH	2.29	1.73	1.52	3K	
		WLCW2520	10nH ~ 4700nH	29.2	2.03	2.79	2K	
	Multi-Layer High Frequency Inductors	WLCM0603	0.3nH ~ 100nH	0.6	0.3	0.3	15k	
		WLCM1005	1nH ~ 270nH	1.0	0.5	0.5	10K	
		WLCM1608	1nH ~ 470nH	1.6	0.8	0.8	4K	
	SMD Air Wound Coil	WLAC291A	2.5nH ~ 18.5nH	2.92	3.05	3.18	0.5K	
		WLAC291B	1nH ~ 43nH	5.84	3.05	3.18	0.5K	
		WLQC0806	5nH ~ 19.4nH	2.59	1.82	1.39	2K	
WLQC0807		6.9nH ~ 22nH	2.59	1.82	1.52	2K		
		WLQC0908	1nH ~ 27.3nH	2.97	2.13	1.82	2K	
Signal and Noise	Ferrite Chip Inductor	WLF1005	0.22uH ~ 2.2uH	1.0	0.5	0.5	10K	
		WLF1608	0.047uH ~ 10uH	1.6	0.8	0.8	4K	
		WLF12012	0.047uH ~ 10uH	2.0	1.2	0.85 1.25	4K 2K	
		WLF13216	0.047uH ~ 10uH	3.2	1.6	1.1	3K	
	Chip Bead	WLBD0402	10Ω ~ 120Ω	0.4	0.2	0.2	20K	
		WLBD0603	22Ω ~ 600Ω	0.6	0.3	0.3	15K	
		WLBD1005	30Ω ~ 1000Ω	1.0	0.5	0.5	10K	
		WLBD1608	30Ω ~ 2000Ω	1.6	0.8	0.8	4K	
		WLBD2012	11Ω ~ 2000Ω	2.0	1.2	0.85 1.25	4K 2K	
		WLBD3216	26Ω ~ 600Ω	3.2	1.6	1.1	3K	
	Chip Bead High Current Type	WLBD1005HC	10Ω ~ 470Ω	1.0	0.5	0.5	10K	
		WLBD1608HC	30Ω ~ 600Ω	1.6	0.8	0.8	4K	
		WLBD2012HC	30Ω ~ 600Ω	2.0	1.2	1.25	4K	
		WLBD3216HC	30Ω ~ 600Ω	3.2	1.6	1.1	3K	
	Wire Wound Ferrite Chip Inductors	WLFW2012	0.078uH ~ 22uH	2.29	1.91	1.60	3K	
		WLFW2520	0.047uH ~ 22uH	2.72	2.59	1.83	2K	
	Common Mode Choke	WTCF2012	67Ω ~ 370Ω	2.0	1.2	1.2	2K	
		WTCF2012FH	67Ω ~ 120Ω	2.0	1.2	1.2	2K	
	Balun Transformer	WTBL2012	50 / 50Ω ; 75 / 75Ω	2.0	1.2	1.2	2K	
	Power Inductor	Multi-Layer Power Inductors	WLFM1608	0.33uH ~ 2.2uH	1.6	0.8	0.95	4K
WLFM2012			0.47uH ~ 4.7uH	2.0	1.25	1.0	3K	
WLFM2520			0.47uH ~ 4.7uH	2.5	2.0	1.0	3K	
SMD Shield Wire Wound Power Inductors		WLPN202012	1uH ~ 4.7uH	2.0	2.0	1.2	2.5K	
		WLPN242410	0.68uH ~ 22uH	2.4	2.4	1.0	2.5K	
		WLPN303010	1.2uH ~ 22uH	3.0	3.0	1.0	2K	
		WLPN404010	1.5uH ~ 22uH	4.0	4.0	1.0	5K	
		WLPN505010	1.5uH ~ 22uH	4.9	4.9	1.0	1K	
		WLPN606010	1.5uH ~ 22uH	6.0	6.0	1.0	1K	
		WLPN303015	1uH ~ 100uH	3.0	3.0	1.5	2K	
SMD Unshield Wire Wound Power Inductors		WLSN032D	1uH ~ 470uH	3.3	3.2	2.1	0.5K	
		WLSN043D	1uH ~ 330uH	4.5	4.0	3.2	2.25K	
		WLSN054D	1uH ~ 270uH	5.8	5.2	4.5	1K	
		WLSN073D	10uH ~ 330uH	7.8	7.0	3.5	1K	
		WLSN075D	6.8uH ~ 3000uH	7.8	7.0	5.5	1K	
		WLSN084F	1uH ~ 1000uH	12.95	9.4	5.21	0.75K	
SMD Molded Power Choke		WLPM706630	0.22uH ~ 33uH	7.0	6.6	2.8	1.5K	
		WLPM545230	0.2uH ~ 10uH	5.4	5.2	2.8	2K	
		WLPM444220	0.1uH ~ 10uH	4.4	4.2	1.8	3K	
		WLPM252012	0.33uH ~ 4.7uH	2.5	2.0	1.2	3K	
			WLPMA0A040	0.22uH ~ 68uH	10.85 11.15	10.0	3.8	0.5K
SMD Molded Power Choke AEC-Q200		WLQM474012	0.22uH ~ 2.2uH	4.7	4.0	1.2	2K	
		WLQM474020	0.15uH ~ 5.6uH	4.7	4.0	2.0	2K	
		WLQM766530	0.15uH ~ 9.0uH	7.6	6.5	3.0	1K	
		WLQM766540	0.5uH ~ 15uH	7.6	6.5	4.0	1K	
		WLQMB0A040	0.22uH ~ 10uH	11.5	10.0	4.0	0.7K	
		WLQMB0A050	0.45uH ~ 33uH	11.5	10.0	5.0	0.7K	



## Part Number Explanation and Coding Rule

W L      C M      1 6 0 8      Z 0      G      1 N 2      T      B  
 1            2            3            4            5            6            7            8

1. Category	Code	Description
	WL	Inductor/Bead Products
	WT	Transformer / Balun /Common Mode Choke

2. Series	Code	Description
a. RF Inductor	CW	Ceramic Wire Wound Chip Inductor
	CM	Multilayer Chip Inductor(MLCI)
	AC	Air Coil with Cap
	QC	Air Square Coil
	TF	Thin Film Inductor
b. Signal and Noise	FI	Ferrite Chip Inductor
	BD	Chip Bead
	FW	Wire Wound Ferrite Chip Inductor
	CF	Common Mode Choke
a. Power Inductor	FM	Multilayer Ferrite Chip Inductor(MFCI)
	QM	Molded Power Inductor (AEC Q200)
	SN	Unshielded Power Inductor

3. Dimension	Code	Description
a. Size	3216	EIA 1206
	2520	EIA 1008
	2012	EIA 0805
	1608	EIA 0603
	1005	EIA 0402
	0603	EIA 0201
	0402	EIA 01005
b. Others	<b>Code</b>	<b>Description</b>
	1610	1.6mm*1.0mm
	7232	7.2mm*3.2mm
	A0B0	10.0mm*11.0mm

A:10 ,B:11

4. Series extension 系列擴充碼	Code	Description
a. Series Extension	Z0	No Definition
	XX	Refer to Datasheet
b. Dimension Height (Detail in Datasheet)	12	1.2mm
	B7	11.7mm

5. Tolerance:	Code	Description
	B	± 0.1nH
	C	± 0.2nH
	S	± 0.3nH
	W	± 0.5nH
	G	± 2%
	H	± 3%
	J	± 5%
	K	± 10%
	M	± 20%
	N	± 30%
	U	Datasheet

6. Value:	Code	Description
	1N2	1.2nH
	12N	12nH
	R12	120nH=0.12uH
	1R2	1.2uH / OHM
	120 / 12R	12uH / OHM
	121	120uH / OHM
102	1200uH / OHM	

OHM: Unit for WLBD WTCF

Series No. For WTBL

7. Packing	Code	Description
	T	7" Paper Tape
	P	7" Plastic Tape
L	13" Plastic Tape	

8. Spare	Code	Description
	B	No Definition

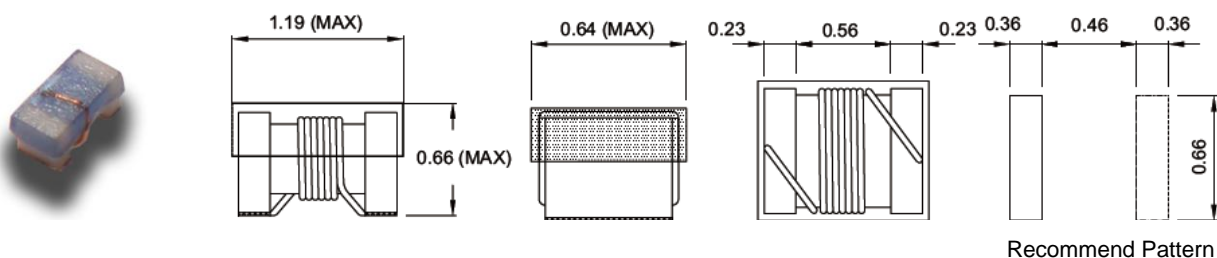
# Wire Wound Ceramic Chip Inductors WLCW1005 Series

## Wire Wound Ceramic Chip Inductors WLCW1005 Series

### Mechanical Dimensions

(Unit: mm)

WLCW1005



### Electrical Specification

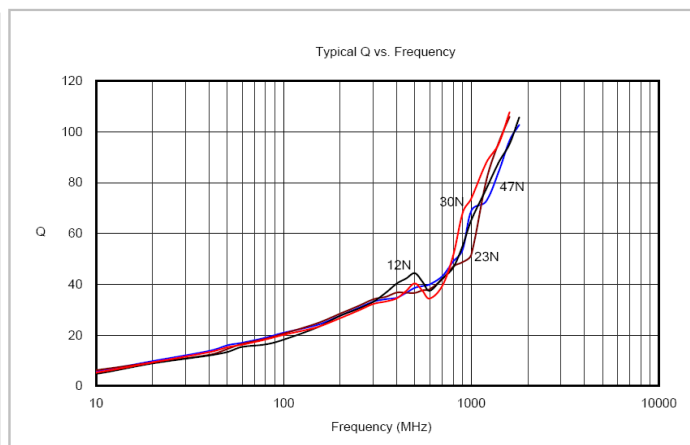
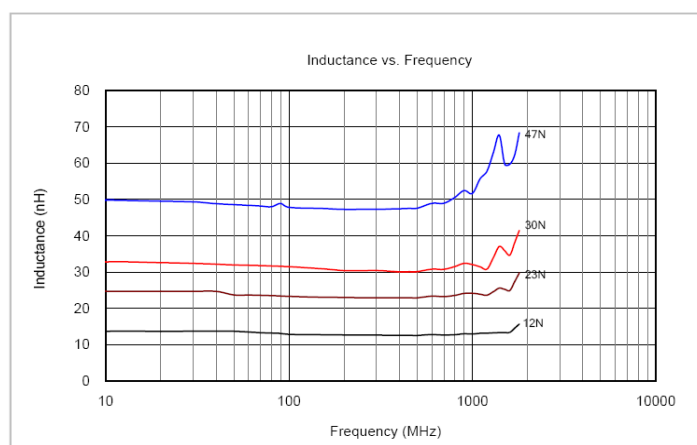
Part Number	Inductance (nH)	Inductance Tolerance	Q Min.	Test Freq. (MHz)	SRF (GHz) Min.	DCR (Ω) Max.	Rated Current (mA)
WLCW1005Z0□1N0TB	1.0	J	16	250	12.70	0.045	1360
WLCW1005Z0□1N2TB	1.2	J	16	250	12.90	0.090	740
WLCW1005Z0□1N8TB	1.8	J	16	250	12.00	0.070	1040
WLCW1005Z0□1N9TB	1.9	J	16	250	11.30	0.070	1040
WLCW1005Z0□2N0TB	2.0	G、J	16	250	11.10	0.070	1040
WLCW1005Z0□2N2TB	2.2	G、J	19	250	10.80	0.070	960
WLCW1005Z0□2N4TB	2.4	G、J	15	250	10.50	0.068	790
WLCW1005Z0□2N7TB	2.7	G、J	16	250	10.40	0.120	640
WLCW1005Z0□3N3TB	3.3	G、J	19	250	7.00	0.066	840
WLCW1005Z0□3N6TB	3.6	G、J	19	250	6.80	0.066	840
WLCW1005Z0□3N9TB	3.9	G、J	19	250	6.00	0.066	840
WLCW1005Z0□4N3TB	4.3	G、J	18	250	6.00	0.091	700
WLCW1005Z0□4N7TB	4.7	G、J	15	250	4.70	0.130	640
WLCW1005Z0□5N1TB	5.1	G、J	20	250	4.80	0.083	800
WLCW1005Z0□5N6TB	5.6	G、J	20	250	4.80	0.083	760
WLCW1005Z0□6N2TB	6.2	G、J	20	250	4.80	0.083	760
WLCW1005Z0□6N8TB	6.8	G、J	20	250	4.80	0.083	680
WLCW1005Z0□7N3TB	7.3	G、J	20	250	4.80	0.260	680
WLCW1005Z0□7N5TB	7.5	G、J	22	250	4.80	0.100	680
WLCW1005Z0□8N2TB	8.2	G、J	22	250	4.40	0.100	680
WLCW1005Z0□8N7TB	8.7	G、J	18	250	4.10	0.200	480
WLCW1005Z0□9N1TB	9.1	G、J	22	250	4.16	0.100	680
WLCW1005Z0□9N5TB	9.5	G、J	18	250	4.00	0.200	480
WLCW1005Z0□10NTB	10	G、J	21	250	3.90	0.200	480
WLCW1005Z0□11NTB	11	G、J	24	250	3.68	0.120	640
WLCW1005Z0□12NTB	12	G、J	24	250	3.60	0.120	640
WLCW1005Z0□13NTB	13	G、J	24	250	3.45	0.210	440
WLCW1005Z0□15NTB	15	G、J	24	250	3.28	0.170	560
WLCW1005Z0□16NTB	16	G、J	24	250	3.10	0.220	560
WLCW1005Z0□18NTB	18	G、J	25	250	3.10	0.230	420

### Electrical Specification (continuous)

Part Number	Inductance (nH)	Inductance Tolerance	Q Min.	Test Freq. (MHz)	SRF (GHz) Min.	DCR (Ω) Max.	Rated Current (mA)
WLCW1005Z0□19NTB	19	G、J	24	250	3.04	0.200	480
WLCW1005Z0□20NTB	20	G、J	25	250	3.00	0.250	420
WLCW1005Z0□22NTB	22	G、J	25	250	2.80	0.300	400
WLCW1005Z0□23NTB	23	G、J	22	250	2.72	0.300	400
WLCW1005Z0□24NTB	24	G、J	25	250	2.70	0.300	400
WLCW1005Z0□27NTB	27	G、J	24	250	2.48	0.300	400
WLCW1005Z0□30NTB	30	G、J	25	250	2.35	0.300	400
WLCW1005Z0□33NTB	33	G、J	24	250	2.35	0.300	400
WLCW1005Z0□36NTB	36	G、J	24	250	2.32	0.440	320
WLCW1005Z0□39NTB	39	G、J	25	250	2.10	0.550	200
WLCW1005Z0□40NTB	40	G、J	24	250	2.24	0.440	320
WLCW1005Z0□43NTB	43	G、J	25	250	2.03	0.810	100
WLCW1005Z0□47NTB	47	G、J	20	250	2.10	0.830	150
WLCW1005Z0□51NTB	51	G、J	25	250	1.75	0.820	100
WLCW1005Z0□56NTB	56	G、J	22	250	1.76	0.970	100
WLCW1005Z0□68NTB	68	G、J	22	250	1.62	1.120	100
WLCW1005Z0□82NTB	82	G、J	20	250	1.26	1.550	50
WLCW1005Z0□R10TB	100	G、J	20	250	1.16	2.000	30

1. Tolerance : K=±10% ; J=±5% ; G=±2%
2. Operating Temp : -40°C to +125°C
3. For 15°C Temperature Rise.
4. Inductance & Q measured using the HP4291B.
5. SRF measured using the HP8753E or HP8720D.
6. DCR measured using the 16502 milli-ohm meter.
7. Unspecified values available on request

### Characteristic Curve



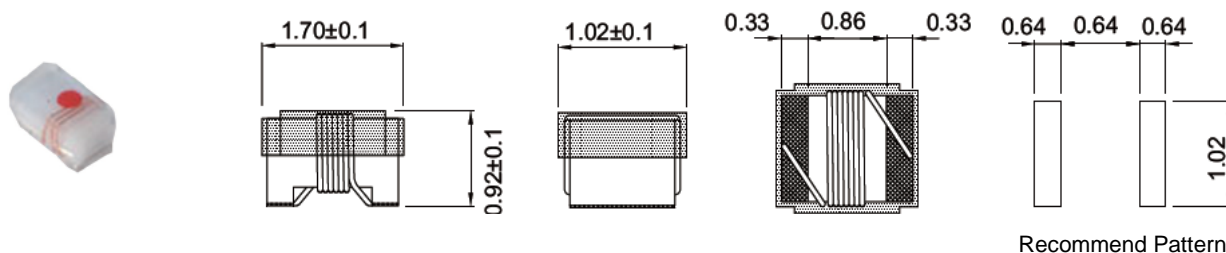
# Wire Wound Ceramic Chip Inductors WLCW1608 Series

## Wire Wound Ceramic Chip Inductors WLCW1608 Series

### Mechanical Dimensions

(Unit: mm)

WLCW1608



Recommend Pattern

### Electrical Specification

Part Number	Inductance (nH)	Inductance Tolerance	Q Min.	Test Freq. (MHz)	900 (MHz)		1.7 (GHz)		SRF (GHz) Min.	DCR (Ω) Max.	I <sub>rms</sub> (mA)	Color Code
					L typ.	Q typ.	L typ.	Q typ.				
WLCW1608Z0□1N6PB	1.6	J	24	250	1.67	49	1.65	63	12.50	0.030	700	BLACK
WLCW1608Z0□1N8PB	1.8	J	16	250	1.83	35	1.86	50	12.50	0.045	700	BROWN
WLCW1608Z0□2N1PB	2.1	J	20	250	2.11	31	2.09	45	5.80	0.005	700	RED
WLCW1608Z0□2N2PB	2.2	J	20	250	2.22	31	2.24	44	5.80	0.100	700	ORANGE
WLCW1608Z0□3N3PB	3.3	J	20	250	3.31	75	3.38	88	5.50	0.070	700	VIOLET
WLCW1608Z0□3N6PB	3.6	J	22	250	3.72	53	3.71	65	5.90	0.063	700	RED
WLCW1608Z0□3N9PB	3.9	J	22	250	3.95	49	3.96	67	5.90	0.080	700	ORANGE
WLCW1608Z0□4N3PB	4.3	J	22	250	4.32	50	4.33	70	5.90	0.063	700	YELLOW
WLCW1608Z0□4N7PB	4.7	J	20	250	4.72	47	4.75	57	5.80	0.116	700	GREEN
WLCW1608Z0□5N1PB	5.1	J	20	250	4.93	47	4.95	56	5.70	0.140	700	BLUE
WLCW1608Z0□5N6PB	5.6	J	20	250	5.77	63	6.05	80	5.80	0.150	700	GRAY
WLCW1608Z0□6N1PB	6.1	J	25	250	5.90	59	7.08	79	5.80	0.110	700	WHITE
WLCW1608Z0□6N8PB	6.8	G、J	27	250	6.75	60	7.10	81	5.80	0.110	700	VIOLET
WLCW1608Z0□7N5PB	7.5	G、J	28	250	7.70	60	7.82	85	4.80	0.106	700	GRAY
WLCW1608Z0□8N2PB	8.2	G、J	25	250	8.25	82	8.37	87	5.80	0.120	700	BLACK
WLCW1608Z0□8N4PB	8.4	G、J	28	250	8.39	79	8.51	85	4.60	0.109	700	RED
WLCW1608Z0□8N5PB	8.5	G、J	28	250	8.47	81	8.62	86	4.60	0.109	700	RED
WLCW1608Z0□8N7PB	8.7	G、J	28	250	8.86	62	9.32	58	4.60	0.109	700	WHITE
WLCW1608Z0□9N5PB	9.5	G、J	28	250	9.70	59	9.92	61	5.40	0.135	700	BLACK
WLCW1608Z0□10NPB	10	G、J	31	250	10.00	66	10.6	83	4.80	0.130	700	BROWN
WLCW1608Z0□11NPB	11	G、J	33	250	11.00	53	11.5	56	4.00	0.086	700	RED
WLCW1608Z0□12NPB	12	G、J	35	250	12.30	72	13.5	83	4.00	0.130	700	ORANGE
WLCW1608Z0□14NPB	14	G、J	35	250	14.20	69	15.6	85	4.00	0.170	700	BROWN
WLCW1608Z0□15NPB	15	G、J	35	250	15.40	64	16.8	89	4.00	0.170	700	YELLOW
WLCW1608Z0□16NPB	16	G、J	34	250	16.20	55	17.3	52	3.30	0.104	700	GREEN
WLCW1608Z0□18NPB	18	G、J	35	250	18.70	70	21.4	69	3.10	0.170	700	BLUE
WLCW1608Z0□22NPB	22	G、J	38	250	22.80	73	26.1	71	3.00	0.190	700	VIOLET
WLCW1608Z0□23NPB	23	G、J	38	250	24.10	71	28.0	67	2.85	0.190	700	BLACK
WLCW1608Z0□24NPB	24	G、J	37	250	24.50	45	28.7	39	2.65	0.135	700	GRAY
WLCW1608Z0□27NPB	27	G、J	40	250	29.20	74	34.6	65	2.80	0.220	600	WHITE
WLCW1608Z0□30NPB	30	G、J	37	250	31.40	47	39.9	28	2.25	0.144	600	BLACK
WLCW1608Z0□33NPB	33	G、J	40	250	36.00	67	49.5	42	2.30	0.220	600	BROWN
WLCW1608Z0□36NPB	36	G、J	38	250	39.40	47	52.7	24	2.08	0.250	600	RED
WLCW1608Z0□39NPB	39	G、J	40	250	42.70	60	60.2	40	2.20	0.250	600	ORANGE
WLCW1608Z0□43NPB	43	G、J	39	250	47.00	44	64.9	21	2.00	0.280	600	YELLOW
WLCW1608Z0□47NPB	47	G、J	38	200	52.20	62	77.2	35	2.00	0.280	600	GREEN
WLCW1608Z0□51NPB	51	G、J	35	200	55.50	69	82.2	34	1.90	0.270	600	BROWN

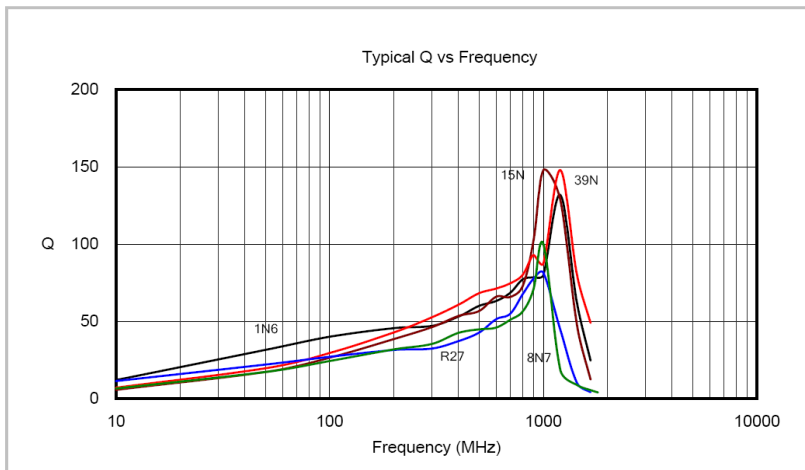
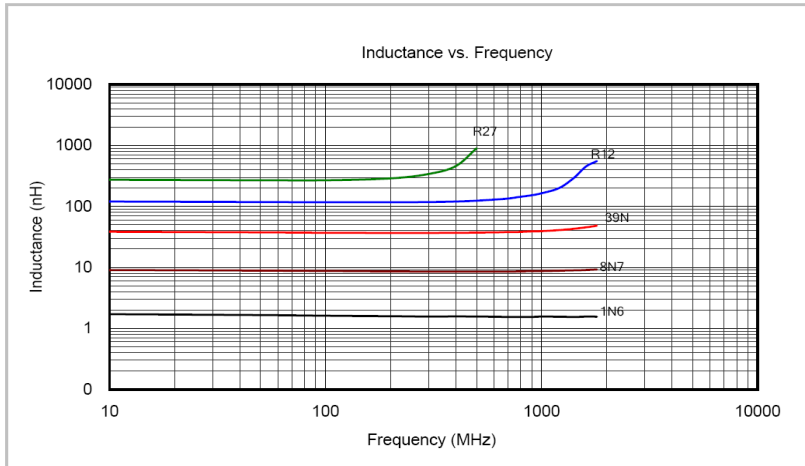


### Electrical Specification (continuous)

Part Number	Inductance (nH)	Inductance Tolerance	Q Min.	Test Freq. (MHz)	900 (MHz)		1.7 (GHz)		SRF (GHz) Min.	DCR (Ω) Max.	I <sub>rms</sub> (mA)	Color Code
					L typ.	Q typ.	L typ.	Q typ.				
WLCW1608Z0□56NPB	56	G、J	38	200	62.50	56	97.0	26	1.90	0.310	600	BLUE
WLCW1608Z0□68NPB	68	G、J	37	200	80.50	54	168	21	1.70	0.340	600	VIOLET
WLCW1608Z0□72NPB	72	G、J	34	150	82.00	53	135	20	1.70	0.490	400	GRAY
WLCW1608Z0□82NPB	82	G、J	34	150	96.20	54	177	21	1.70	0.540	400	WHITE
WLCW1608Z0□R10PB	100	G、J	34	150	124	49	-	-	1.40	0.580	400	BLACK
WLCW1608Z0□R11PB	110	G、J	32	150	138	43	-	-	1.35	0.610	300	BROWN
WLCW1608Z0□R12PB	120	G、J	32	150	166	39	-	-	1.30	0.650	300	RED
WLCW1608Z0□R15PB	150	G、J	28	150	250	25	-	-	0.990	0.920	280	ORANGE
WLCW1608Z0□R18PB	180	G、J	25	100	305	22	-	-	0.990	1.250	240	YELLOW
WLCW1608Z0□R20PB	200	G、J	25	100	-	-	-	-	0.990	1.980	200	RED
WLCW1608Z0□R21PB	210	G、J	27	100	-	-	-	-	0.895	2.060	200	ORANGE
WLCW1608Z0□R22PB	220	G、J	25	100	-	-	-	-	0.900	1.900	200	GREEN
WLCW1608Z0□R25PB	250	G、J	25	100	-	-	-	-	0.822	3.550	120	YELLOW
WLCW1608Z0□R27PB	270	G、J	24	100	-	-	-	-	0.900	2.300	170	BLUE
WLCW1608Z0□R33PB	330	G、J	24	100	-	-	-	-	0.900	3.900	100	VIOLET
WLCW1608Z0□R39PB	390	G、J	25	100	-	-	-	-	0.900	4.350	100	GRAY

1. Tolerance : K=±10% ; J=±5% ; G=±2%
2. Operating Temp : -40°C to +125°C
3. For 15°C Temperature Rise.
4. Inductance & Q measured using the HP4291B.
5. SRF measured using the HP8753E or HP8720D.
6. DCR measured using the 16502BC milli-ohm meter.
7. Unspecified values available on request.

### Characteristic Curve

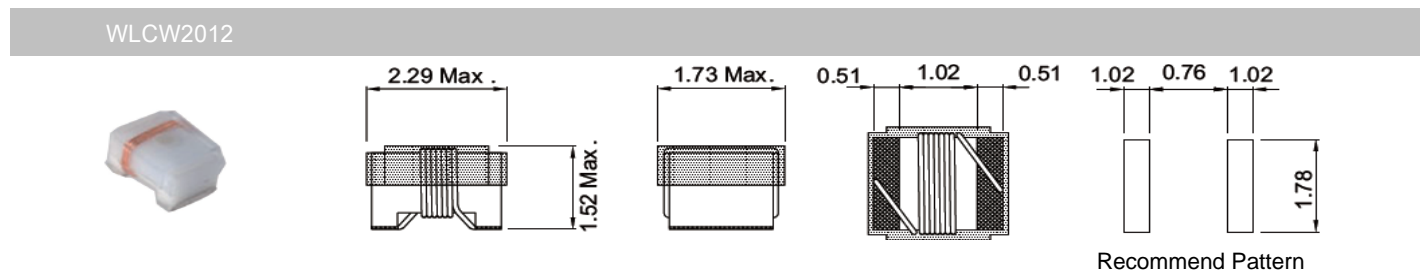


# Wire Wound Ceramic Chip Inductors WLCW2012 Series

## Wire Wound Ceramic Chip Inductors WLCW2012 Series

### Mechanical Dimensions

(Unit: mm)



### Electrical Specification

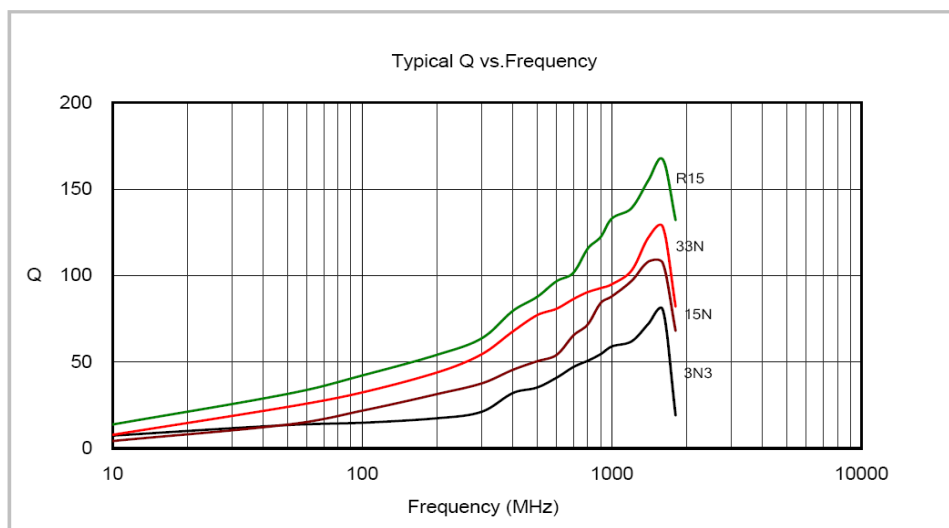
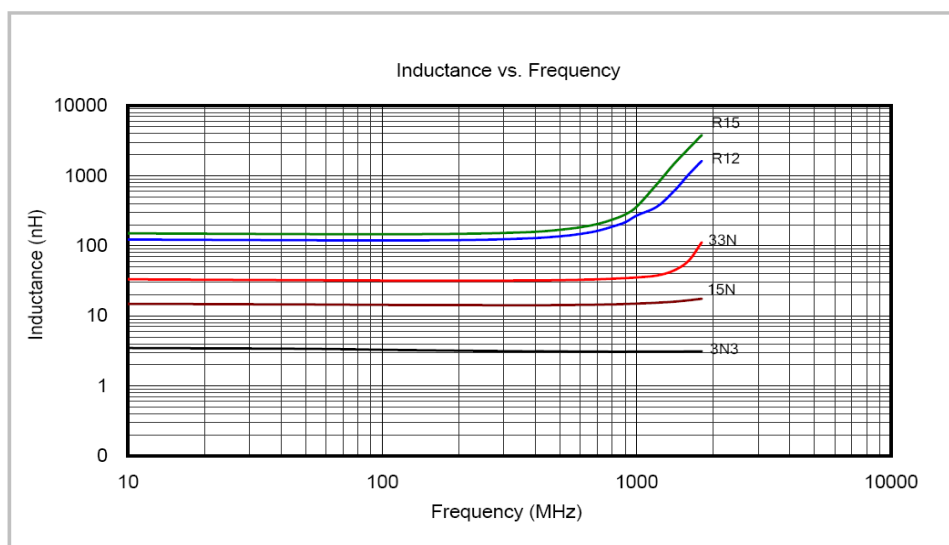
Part Number	Inductance (nH)	Inductance Tolerance	Test Freq. (MHz)	Q Min.	Test Freq. (MHz)	SRF (GHz) Min.	DCR (Ω) Max.	I <sub>rms</sub> (mA)	Color Code
WLCW2012Z0□2N2PB	2.20	J	250	35	1500	3.00	0.08	600	WHITE
WLCW2012Z0□2N7PB	2.70	J	250	35	1000	6.00	0.03	600	BROWN
WLCW2012Z0□2N8PB	2.80	J	250	80	1000	7.90	0.06	800	GRAY
WLCW2012Z0□2N9PB	2.90	J	250	50	1000	4.70	0.05	600	BLUE
WLCW2012Z0□3N0PB	3.00	J	250	65	1500	7.90	0.06	800	WHITE
WLCW2012Z0□3N3PB	3.30	J	250	50	1500	7.90	0.08	600	BLACK
WLCW2012Z0□5N6PB	5.60	J	250	65	1000	5.50	0.08	600	VIOLET
WLCW2012Z0□6N8PB	6.80	J	250	50	1000	5.50	0.11	600	BROWN
WLCW2012Z0□7N5PB	7.50	J	250	50	1000	4.50	0.14	600	GREEN
WLCW2012Z0□8N2PB	8.20	J	250	50	1000	4.70	0.12	600	RED
WLCW2012Z0□10NPB	10.0	G、J	250	60	500	4.20	0.10	600	RED
WLCW2012Z0□11NPB	11.0	G、J	250	45	500	3.00	0.15	600	ORANGE
WLCW2012Z0□12NPB	12.0	G、J	250	50	500	4.00	0.15	600	ORANGE
WLCW2012Z0□15NPB	15.0	G、J	250	50	500	3.40	0.17	600	YELLOW
WLCW2012Z0□18NPB	18.0	G、J	250	50	500	3.30	0.20	600	GREEN
WLCW2012Z0□22NPB	22.0	G、J	250	55	500	2.60	0.22	500	BLUE
WLCW2012Z0□24NPB	24.0	G、J	250	50	500	2.00	0.22	500	GRAY
WLCW2012Z0□27NPB	27.0	G、J	250	55	500	2.50	0.25	500	VIOLET
WLCW2012Z0□33NPB	33.0	G、J	250	60	500	2.05	0.27	500	GRAY
WLCW2012Z0□36NPB	36.0	G、J	250	55	500	1.70	0.27	500	YELLOW
WLCW2012Z0□37NPB	37.0	G、J	350	40	500	1.80	0.27	500	GREEN
WLCW2012Z0□38NPB	38.0	G、J	350	40	500	1.80	0.27	500	BLUE
WLCW2012Z0□39NPB	39.0	G、J	250	60	500	2.00	0.29	500	WHITE
WLCW2012Z0□43NPB	43.0	G、J	200	60	500	1.65	0.34	500	YELLOW
WLCW2012Z0□47NPB	47.0	G、J	200	60	500	1.65	0.31	500	BLACK
WLCW2012Z0□56NPB	56.0	G、J	200	60	500	1.55	0.34	500	BROWN
WLCW2012Z0□68NPB	68.0	G、J	200	60	500	1.45	0.38	500	RED
WLCW2012Z0□82NPB	82.0	G、J	150	65	500	1.30	0.42	400	ORANGE
WLCW2012Z0□91NPB	91.0	G、J	150	65	500	1.20	0.48	400	BLACK
WLCW2012Z0□R10PB	100	G、J	150	65	500	1.20	0.46	400	YELLOW
WLCW2012Z0□R11PB	110	G、J	150	50	500	1.00	0.48	400	BROWN
WLCW2012Z0□R12PB	120	G、J	150	50	250	1.10	0.51	400	GREEN
WLCW2012Z0□R15PB	150	G、J	100	50	250	0.920	0.56	400	BLUE
WLCW2012Z0□R18PB	180	G、J	100	50	250	0.870	0.64	400	VIOLET
WLCW2012Z0□R20PB	200	G、J	100	50	250	0.860	0.68	400	RED
WLCW2012Z0□R22PB	220	G、J	100	50	250	0.850	0.70	400	GRAY
WLCW2012Z0□R24PB	240	G、J	100	44	250	0.690	1.00	350	RED
WLCW2012Z0□R25PB	250	G、J	100	45	250	0.660	1.20	350	YELLOW
WLCW2012Z0□R27PB	270	G、J	100	48	250	0.650	1.00	350	WHITE
WLCW2012Z0□R30PB	300	G、J	100	25	250	0.450	1.40	300	GRAY

### Electrical Specification (continuous)

Part Number	Inductance (nH)	Inductance Tolerance	Test Freq. (MHz)	Q Min.	Test Freq. (MHz)	SRF (GHz) Min.	DCR (Ω) Max.	I <sub>rms</sub> (mA)	Color Code
WLCW2012Z0□R33PB	330	G、J	100	48	250	0.600	1.40	310	BLACK
WLCW2012Z0□R36PB	360	G、J	100	35	250	0.400	0.90	300	ORANGE
WLCW2012Z0□R39PB	390	G、J	150	48	250	0.560	1.50	290	BROWN
WLCW2012Z0□R43PB	430	G、J	100	25	100	0.400	1.70	190	WHITE
WLCW2012Z0□R47PB	470	J	50	33	100	0.375	1.76	250	VIOLET
WLCW2012Z0□R56PB	560	J	25	23	50	0.340	1.90	230	ORANGE
WLCW2012Z0□R62PB	620	J	25	23	50	0.220	2.20	210	YELLOW
WLCW2012Z0□R68PB	680	J	25	23	50	0.188	2.20	190	GREEN
WLCW2012Z0□R82PB	820	J	25	23	50	0.215	2.35	180	BROWN

1. Tolerance : K=±10% ; J=±5% ; G=±2%
2. Operating Temp : -40°C to +125°C
3. For 15°C Temperature Rise.
4. Inductance & Q measured using the HP4291B.
5. SRF measured using the HP8753E , or HP8720D.
6. DCR measured using the 16502 milli-ohm meters.
7. Unspecified values available on request.

### Characteristic Curve



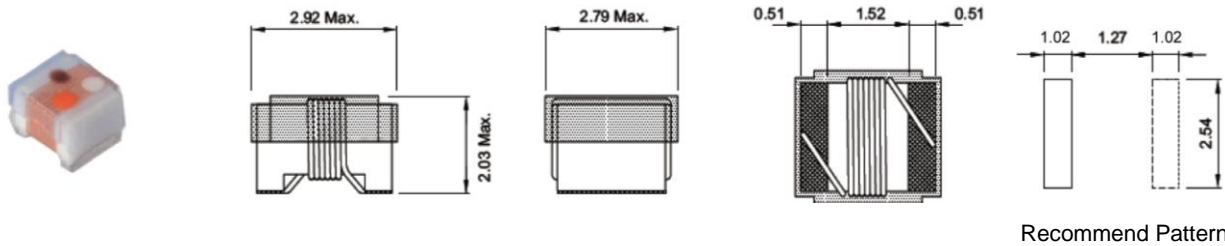
# Wire Wound Ceramic Chip Inductors WLCW2520 Series

## Wire Wound Ceramic Chip Inductors WLCW2520 Series

### Mechanical Dimensions

(Unit: mm)

WLCW2520



Recommend Pattern

### Electrical Specification

Part Number	Inductance (nH)	Inductance Tolerance	Test Freq. (MHz)	Q Min.	Test Freq. (MHz)	SRF (GHz) Min.	DCR (Ω) Max.	I <sub>rms</sub> (mA)	COLOR CODE		
									1st	2nd	multiplier
WLCW2520Z0□10NPB	10	J	50	50	500	4.10	0.08	1000	BROWN	BLACK	BLACK
WLCW2520Z0□12NPB	12	J	50	50	500	3.30	0.09	1000	BROWN	RED	BLACK
WLCW2520Z0□15NPB	15	J	50	50	500	2.50	0.10	1000	BROWN	GREEN	BLACK
WLCW2520Z0□18NPB	18	G、J	50	50	350	2.50	0.11	1000	BROWN	GRAY	BLACK
WLCW2520Z0□22NPB	22	G、J	50	55	350	2.40	0.12	1000	RED	RED	BLACK
WLCW2520Z0□24NPB	24	G、J	50	55	350	1.90	0.13	1000	RED	YELLOW	BLACK
WLCW2520Z0□27NPB	27	G、J	50	55	350	1.60	0.13	1000	RED	VIOLET	BLACK
WLCW2520Z0□33NPB	33	G、J	50	60	350	1.60	0.14	1000	ORANGE	ORANGE	BLACK
WLCW2520Z0□39NPB	39	G、J	50	60	350	1.50	0.15	1000	ORANGE	WHITE	BLACK
WLCW2520Z0□47NPB	47	G、J	50	65	350	1.50	0.16	1000	YELLOW	VIOLET	BLACK
WLCW2520Z0□56NPB	56	G、J	50	65	350	1.30	0.18	1000	GREEN	BLUE	BLACK
WLCW2520Z0□68NPB	68	G、J	50	65	350	1.30	0.20	1000	BLUE	GRAY	BLACK
WLCW2520Z0□82NPB	82	G、J	50	60	350	1.00	0.22	1000	GRAY	RED	BLACK
WLCW2520Z0□R10PB	100	G、J	25	60	350	1.00	0.56	650	BROWN	BLACK	BROWN
WLCW2520Z0□R12PB	120	G、J	25	60	350	0.950	0.63	650	BROWN	RED	BROWN
WLCW2520Z0□R15PB	150	G、J	25	45	100	0.850	0.70	580	BROWN	GREEN	BROWN
WLCW2520Z0□R18PB	180	G、J	25	45	100	0.750	0.77	620	BROWN	GRAY	BROWN
WLCW2520Z0□R20PB	200	G、J	25	50	100	0.750	0.81	500	RED	BLACK	BROWN
WLCW2520Z0□R22PB	220	G、J	25	45	100	0.700	0.84	500	RED	RED	BROWN
WLCW2520Z0□R24PB	240	G、J	25	50	100	0.650	0.84	500	RED	YELLOW	BROWN
WLCW2520Z0□R27PB	270	G、J	25	45	100	0.600	0.91	500	RED	VIOLET	BROWN
WLCW2520Z0□R30PB	300	G、J	25	45	100	0.590	1.00	660	ORANGE	BLACK	BROWN
WLCW2520Z0□R33PB	330	G、J	25	45	100	0.570	1.05	450	ORANGE	ORANGE	BROWN
WLCW2520Z0□R36PB	360	G、J	25	45	100	0.530	1.05	660	ORANGE	BLUE	BROWN
WLCW2520Z0□R39PB	390	G、J	25	45	100	0.500	1.12	470	ORANGE	WHITE	BROWN
WLCW2520Z0□R43PB	430	G、J	25	45	100	0.480	1.15	600	YELLOW	ORANGE	BROWN
WLCW2520Z0□R47PB	470	G、J	25	45	100	0.450	1.19	470	YELLOW	VIOLET	BROWN
WLCW2520Z0□R56PB	560	G、J	25	45	100	0.415	1.33	400	GREEN	BLUE	BROWN
WLCW2520Z0□R62PB	620	G、J	25	45	100	0.375	1.40	300	BLUE	RED	BROWN
WLCW2520Z0□R68PB	680	G、J	25	45	100	0.375	1.47	400	BLUE	GRAY	BROWN
WLCW2520Z0□R75PB	750	G、J	25	45	100	0.360	1.54	360	VIOLET	GREEN	BROWN
WLCW2520Z0□R82PB	820	G、J	25	45	100	0.350	1.61	400	GRAY	RED	BROWN



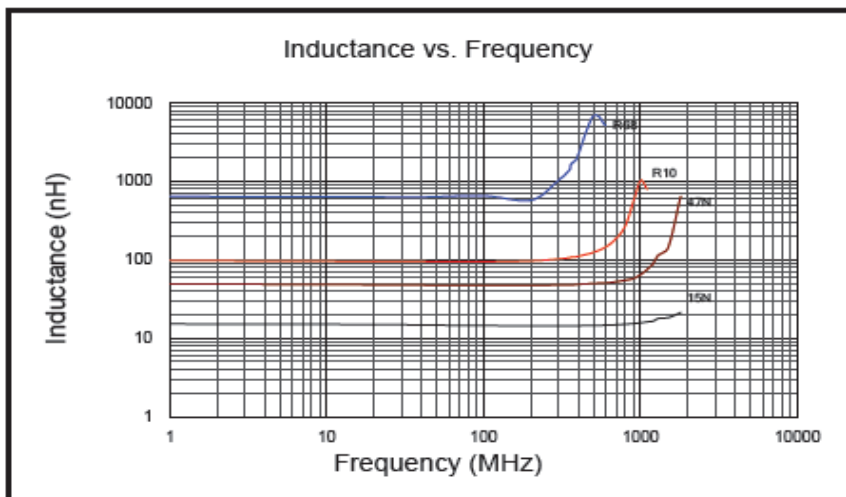
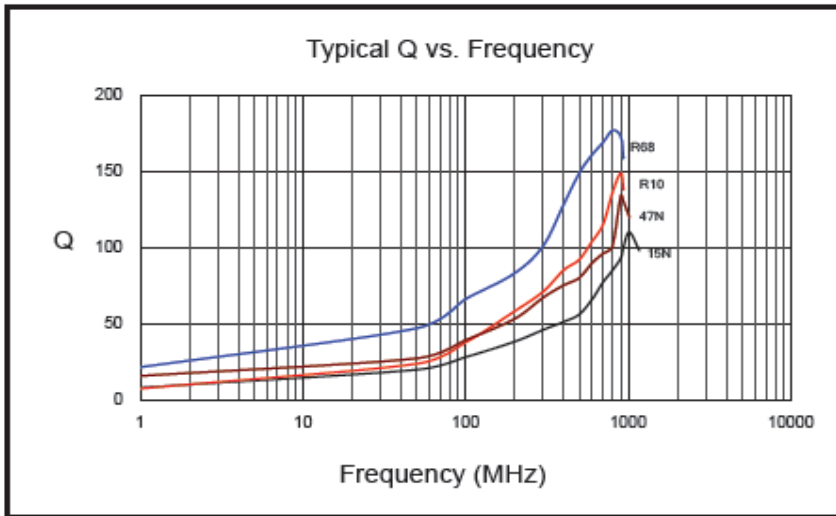
### Electrical Specification (continuous)

Part Number	Inductance (nH)	Inductance Tolerance	Test Freq. (MHz)	Q Min.	Test Freq. (MHz)	SRF (GHz) Min.	DCR (Ω) Max.	I <sub>rms</sub> (mA)	COLOR CODE		
									1st	2nd	multiplier
WLCW2520Z0□R91PB	910	G · J	25	35	50	0.320	1.68	380	WHITE	BROWN	BROWN
WLCW2520Z0□1R0PB	1000	G · J	25	35	50	0.290	1.75	370	BROWN	BLACK	RED
WLCW2520Z0□1R2PB	1200	G · J	7.9	35	50	0.250	2.00	310	BROWN	RED	RED
WLCW2520Z0□1R5PB	1500	G · J	7.9	28	50	0.200	2.30	330	BROWN	GREEN	RED
WLCW2520Z0□1R8PB	1800	G · J	7.9	28	50	0.160	2.60	300	BROWN	GRAY	RED
WLCW2520Z0□2R0PB	2000	G · J	7.9	25	50	0.160	2.80	280	RED	BLACK	RED
WLCW2520Z0□2R2PB	2200	G · J	7.9	28	50	0.160	2.80	280	RED	RED	RED
WLCW2520Z0□2R7PB	2700	G · J	7.9	22	25	0.140	3.20	290	RED	VIOLET	RED
WLCW2520Z0□3R3PB	3300	G · J	7.9	22	25	0.110	3.40	290	ORANGE	ORANGE	RED
WLCW2520Z0□3R9PB	3900	G · J	7.9	20	25	0.100	3.60	260	ORANGE	WHITE	RED
WLCW2520Z0□4R7PB	4700	G · J	7.9	20	25	0.090	4.00	260	YELLOW	VIOLET	RED

1. Tolerance : K=±10% ; J=±5% ; G=±2%
2. Operating Temp : -40°C to +125°C
3. For 15°C Temperature Rise.
4. Inductance & Q measured using the HP4291B.

5. SRF measured using the HP8753E · or HP8720D
6. DCR measured using the 16502 milli-ohm meter.
7. Unspecified values available on request.

### Characteristic Curve



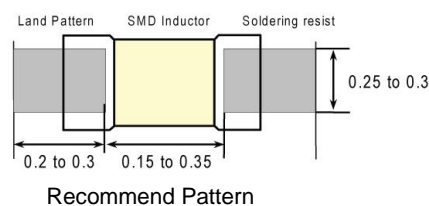
# Multi-Layer High Frequency Inductors WLCM0603 Series

## Multi-Layer High Frequency Inductors WLCM0603 Series

### Mechanical Dimensions

(Unit: mm)

WLCM0603



### Electrical Specification

Ordering Code	Inductance (nH)	Available Tolerance	Q	L, Q Measuring Frequency	Self-Resonance Frequency (MHz)		DC Resistance (Ω)		Rated Current (mA)
			Min.	(MHz)	Min.	typ.	Max.	typ.	Max.
WLCM0603Z0□0N3TB	0.3	B	4	100	10,000	>13000	0.07	0.03	850
WLCM0603Z0□0N4TB	0.4	B	4	100	10,000	>13000	0.07	0.04	850
WLCM0603Z0□0N5TB	0.5	B	4	100	10,000	>13000	0.08	0.05	800
WLCM0603Z0□0N6TB	0.6	B	4	100	10,000	>13000	0.08	0.05	800
WLCM0603Z0□0N7TB	0.7	B	4	100	10,000	>13000	0.09	0.06	750
WLCM0603Z0□0N8TB	0.8	B	4	100	10,000	>13000	0.10	0.07	750
WLCM0603Z0□0N9TB	0.9	B	4	100	10,000	>13000	0.10	0.07	750
WLCM0603Z0□1N0TB	1.0	B、C、S	4	100	10,000	>13000	0.14	0.09	600
WLCM0603Z0□1N1TB	1.1	B、C、S	4	100	10,000	>13000	0.14	0.09	600
WLCM0603Z0□1N2TB	1.2	B、C、S	4	100	10,000	>13000	0.14	0.09	600
WLCM0603Z0□1N3TB	1.3	B、C、S	4	100	10,000	>13000	0.14	0.10	600
WLCM0603Z0□1N5TB	1.5	B、C、S	4	100	10,000	>13000	0.18	0.10	550
WLCM0603Z0□1N6TB	1.6	B、C、S	4	100	10,000	>13000	0.18	0.12	500
WLCM0603Z0□1N8TB	1.8	B、C、S	4	100	10,000	>13000	0.19	0.13	500
WLCM0603Z0□1N9TB	1.9	B、C、S	4	100	10,000	>13000	0.20	0.14	450
WLCM0603Z0□2N0TB	2.0	B、C、S	4	100	10,000	>13000	0.20	0.14	450
WLCM0603Z0□2N1TB	2.1	B、C、S	4	100	10,000	>13000	0.20	0.15	450
WLCM0603Z0□2N2TB	2.2	B、C、S	4	100	10,000	>13000	0.22	0.15	450
WLCM0603Z0□2N3TB	2.3	B、C、S	4	100	10,000	>13000	0.22	0.15	450
WLCM0603Z0□2N4TB	2.4	B、C、S	4	100	10,000	11,700	0.24	0.15	450
WLCM0603Z0□2N7TB	2.7	B、C、S	5	100	10,000	11,340	0.25	0.17	450
WLCM0603Z0□2N9TB	2.9	B、C、S	5	100	9,500	11,000	0.28	0.20	450
WLCM0603Z0□3N0TB	3.0	B、C、S	5	100	9,500	11,000	0.28	0.20	450
WLCM0603Z0□3N2TB	3.2	B、C、S	5	100	9,500	10,800	0.30	0.20	450
WLCM0603Z0□3N3TB	3.3	B、C、S	5	100	9,500	10,400	0.30	0.20	450
WLCM0603Z0□3N4TB	3.4	B、C、S	5	100	8,000	10,000	0.30	0.22	400
WLCM0603Z0□3N6TB	3.6	B、C、S	5	100	8,000	9,000	0.30	0.23	400
WLCM0603Z0□3N9TB	3.9	B、C、S	5	100	6,500	8,790	0.30	0.23	400
WLCM0603Z0□4N3TB	4.3	H、C、S	5	100	6,500	8,000	0.40	0.24	350
WLCM0603Z0□4N7TB	4.7	H、C、S	5	100	6,500	7,750	0.40	0.26	350
WLCM0603Z0□5N1TB	5.1	H、C、S	5	100	6,500	7,210	0.40	0.26	350
WLCM0603Z0□5N6TB	5.6	H、C、S	5	100	6,000	6,680	0.40	0.32	350
WLCM0603Z0□6N2TB	6.2	H、C、S	5	100	6,000	6,800	0.44	0.32	300
WLCM0603Z0□6N8TB	6.8	H、J	5	100	5,400	6,800	0.50	0.34	300
WLCM0603Z0□7N5TB	7.5	H、J	5	100	4,800	6,000	0.53	0.36	300
WLCM0603Z0□8N2TB	8.2	H、J	5	100	4,800	5,800	0.55	0.38	250
WLCM0603Z0□9N1TB	9.1	H、J	5	100	4,500	5,000	0.62	0.38	250
WLCM0603Z0□10NTB	10	H、J	5	100	4,500	4,860	0.65	0.40	250
WLCM0603Z0□12NTB	12	H、J	5	100	3,700	4,520	0.70	0.50	250

### Electrical Specification (continuous)

Ordering Code	Inductance (nH)	Available Tolerance	Q	L, Q Measuring Frequency	Self-Resonance Frequency (MHz)		DC Resistance (Ω)		Rated Current (mA)
			Min.	(MHz)	Min.	typ.	Max.	typ.	Max.
WLCM0603Z0□15NTB	15	H、J	5	100	2,200	4,820	0.80	0.60	250
WLCM0603Z0□18NTB	18	H、J	5	100	2,200	3,000	0.90	0.85	200
WLCM0603Z0□22NTB	22	H、J	5	100	2,000	2,950	1.20	0.86	150
WLCM0603Z0□27NTB	27	H、J	4	100	1,800	2,610	1.80	0.88	140
WLCM0603Z0□33NTB	33	J	4	100	1,700	2,210	2.10	1.05	120
WLCM0603Z0□39NTB	39	J	4	100	1,500	1,860	2.40	1.18	120
WLCM0603Z0□47NTB	47	J	4	100	1,300	1,800	2.80	1.74	100
WLCM0603Z0□56NTB	56	J	4	100	1,100	1,600	3.00	1.85	80
WLCM0603Z0□68NTB	68	J	4	100	1,100	1,500	2.66	2.30	80
WLCM0603Z0□82NTB	82	J	4	100	1,000	1,400	3.37	2.60	70
WLCM0603Z0□R10TB	100	J	4	100	900	1,200	3.74	3.00	60

1. Tolerance: B=±0.1nH, C=±0.2nH, S=±0.3nH, G=±2%, H=±3%, J=±5%, K=±10%

2. Operating Temperature range: -55 °C to +125 °C

### L,Q vs. Frequency Characteristics

Ordering Code	Typical Inductance(nH)							Typical Q						
	100 MHz	500 MHz	800 MHz	900 MHz	1.8 GHz	2.0 GHz	2.4 GHz	100 MHz	500 MHz	800 MHz	900 MHz	1.8 GHz	2.0 GHz	2.4 GHz
WLCM0603Z0□0N3TB	0.3	0.3	0.3	0.3	0.3	0.3	0.3	6	14	19	20	32	35	39
WLCM0603Z0□0N4TB	0.4	0.4	0.4	0.4	0.4	0.4	0.4	6	14	19	20	32	35	39
WLCM0603Z0□0N5TB	0.5	0.5	0.5	0.5	0.5	0.5	0.5	6	14	19	20	33	36	40
WLCM0603Z0□0N6TB	0.6	0.6	0.5	0.5	0.5	0.5	0.5	6	15	19	20	33	36	40
WLCM0603Z0□0N7TB	0.7	0.7	0.6	0.6	0.6	0.6	0.6	6	15	20	21	34	37	41
WLCM0603Z0□0N8TB	0.8	0.8	0.7	0.7	0.7	0.7	0.7	6	14	19	20	32	35	39
WLCM0603Z0□0N9TB	0.9	0.8	0.8	0.8	0.8	0.8	0.8	6	15	20	21	35	37	42
WLCM0603Z0□1N0TB	1.0	0.9	0.9	0.9	0.9	0.9	0.9	5	13	17	18	28	30	33
WLCM0603Z0□1N1TB	1.1	1.0	1.0	1.0	0.9	0.9	0.9	6	14	18	20	30	32	34
WLCM0603Z0□1N2TB	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6	14	18	19	28	30	32
WLCM0603Z0□1N3TB	1.3	1.2	1.2	1.2	1.2	1.2	1.2	6	13	17	18	27	28	31
WLCM0603Z0□1N5TB	1.5	1.4	1.3	1.3	1.4	1.4	1.4	6	14	18	20	30	32	34
WLCM0603Z0□1N6TB	1.6	1.6	1.6	1.6	1.6	1.6	1.6	6	14	18	20	28	30	31
WLCM0603Z0□1N8TB	1.8	1.7	1.7	1.7	1.7	1.7	1.7	6	14	18	20	28	30	31
WLCM0603Z0□1N9TB	1.9	1.8	1.8	1.8	1.9	1.8	1.9	6	14	18	19	28	29	31
WLCM0603Z0□2N0TB	2.0	1.9	1.9	1.9	2.0	1.9	2.0	6	14	18	19	28	29	31
WLCM0603Z0□2N1TB	2.1	2.0	1.9	1.9	2.0	2.0	2.1	6	13	17	18	26	28	30
WLCM0603Z0□2N2TB	2.2	2.1	2.0	2.0	2.1	2.1	2.2	6	13	17	18	26	28	30
WLCM0603Z0□2N3TB	2.3	2.2	2.1	2.1	2.2	2.3	2.4	6	13	17	18	26	28	30
WLCM0603Z0□2N4TB	2.4	2.3	2.2	2.2	2.3	2.4	2.5	6	14	18	20	28	29	31
WLCM0603Z0□2N7TB	2.7	2.5	2.5	2.5	2.6	2.7	2.8	6	14	18	19	28	29	31
WLCM0603Z0□2N9TB	2.9	2.7	2.7	2.7	2.8	2.8	2.9	6	14	18	19	28	29	31
WLCM0603Z0□3N0TB	3.0	2.8	2.8	2.8	2.9	2.9	3.0	7	15	19	21	30	31	33
WLCM0603Z0□3N2TB	3.2	3.0	3.0	3.0	3.1	3.1	3.2	6	14	19	20	29	30	32
WLCM0603Z0□3N3TB	3.3	3.2	3.1	3.2	3.0	3.4	3.5	6	14	19	20	29	30	32
WLCM0603Z0□3N4TB	3.4	3.3	3.2	3.2	3.1	3.4	3.5	6	14	19	20	29	30	32

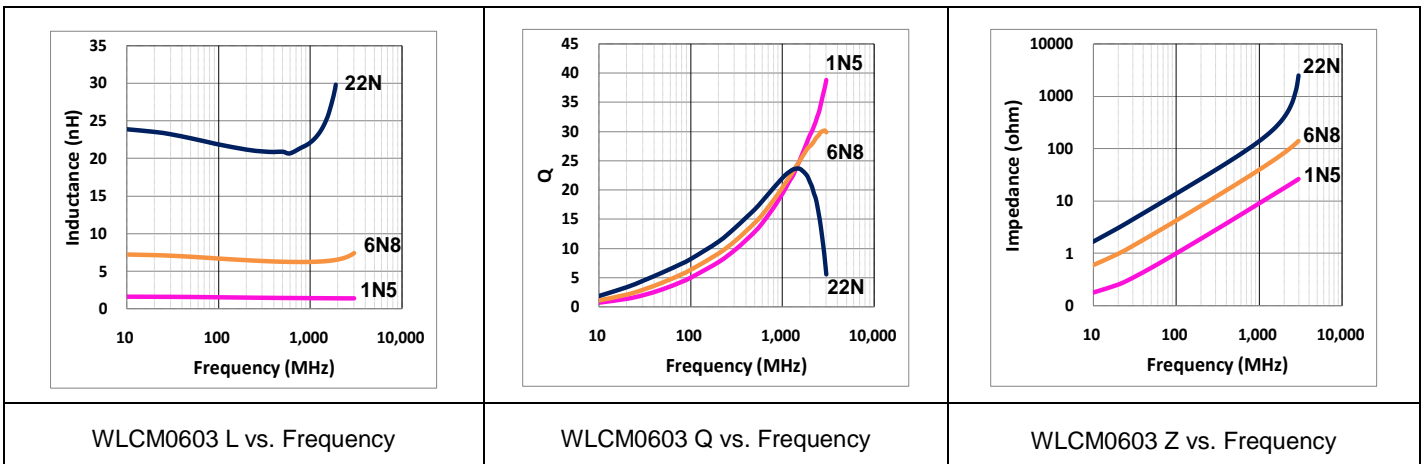
# Multi-Layer High Frequency Inductors

## WLCM0603 Series

### L,Q vs. Frequency Characteristics (continuous)

Ordering Code	Typical Inductance(nH)							Typical Q						
	100 MHz	500 MHz	800 MHz	900 MHz	1.8 GHz	2.0 GHz	2.4 GHz	100 MHz	500 MHz	800 MHz	900 MHz	1.8 GHz	2.0 GHz	2.4 GHz
WLCM0603Z0□3N6TB	3.6	3.4	3.4	3.4	3.7	3.7	3.9	6	14	18	20	28	29	31
WLCM0603Z0□3N9TB	3.9	3.7	3.7	3.7	3.9	4.0	4.2	6	15	19	20	28	29	31
WLCM0603Z0□4N3TB	4.3	4.1	4.1	4.1	4.4	4.9	4.8	6	14	18	19	27	28	29
WLCM0603Z0□4N7TB	4.7	4.4	4.4	4.4	4.8	4.9	5.2	6	14	19	19	26	27	29
WLCM0603Z0□5N1TB	5.1	4.9	4.9	4.9	5.4	5.6	6.0	6	13	17	18	25	25	26
WLCM0603Z0□5N6TB	5.6	5.3	5.3	5.3	5.8	6.0	6.6	7	14	18	19	26	27	27
WLCM0603Z0□6N2TB	6.2	6.0	6.0	6.1	6.9	7.2	8.1	6	14	18	19	26	26	30
WLCM0603Z0□6N8TB	6.8	6.3	6.4	6.4	7.2	7.4	8.2	7	14	18	19	26	26	26
WLCM0603Z0□7N5TB	7.5	7.1	7.2	7.2	8.3	8.7	9.8	6	15	18	20	25	25	25
WLCM0603Z0□8N2TB	8.2	7.8	7.9	8.0	9.2	9.7	11.0	7	15	18	19	19	24	24
WLCM0603Z0□9N1TB	9.1	8.7	8.8	8.9	10.8	11.6	13.9	6	13	16	17	21	20	18
WLCM0603Z0□10NTB	10.0	9.3	9.5	9.6	12.0	13.0	16.1	6	13	16	17	20	20	18
WLCM0603Z0□12NTB	12.0	11.3	11.5	11.7	15.4	17.2	23.2	7	13	16	17	18	17	14
WLCM0603Z0□15NTB	15.0	14.5	15.1	15.4	22.4	26.2	42.3	7	15	18	19	19	17	11
WLCM0603Z0□18NTB	18.0	17.2	18.1	18.6	31.1	39.5	99.3	7	13	16	16	14	11	5
WLCM0603Z0□22NTB	22.0	21.4	22.8	23.5	45.5	64.1	-	7	13	16	16	12	8	-
WLCM0603Z0□27NTB	27.0	26.6	29.2	30.6	108.5	-	-	6	13	15	15	6	-	-
WLCM0603Z0□33NTB	33.0	31.9	34.8	36.0	119.0	-	-	7	14	16	17	6	-	-
WLCM0603Z0□39NTB	39.0	38.2	42.3	45.6	-	-	-	6	12	13	13	-	-	-
WLCM0603Z0□47NTB	47.0	44.0	47.0	49.0	-	-	-	6	11	12	11	-	-	-
WLCM0603Z0□56NTB	56.0	54.0	61.0	66.0	-	-	-	6	11	11	10	-	-	-
WLCM0603Z0□68NTB	68.0	66.0	76.0	82.0	-	-	-	6	11	11	10	-	-	-
WLCM0603Z0□82NTB	82.0	80.0	97.0	108.0	-	-	-	6	11	10	8	-	-	-
WLCM0603Z0□R10TB	100.0	103.0	138.0	164.0	-	-	-	6	10	9	6	-	-	-

### Characteristic Curve



WLCM0603 L vs. Frequency

WLCM0603 Q vs. Frequency

WLCM0603 Z vs. Frequency

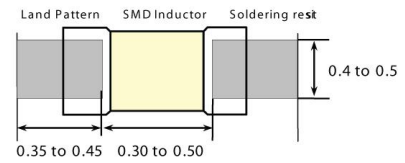
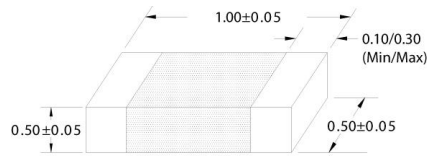


## Multi-Layer High Frequency Inductors WLCM1005 Series

### Mechanical Dimensions

(Unit: mm)

WLCM1005



Recommend Pattern

### Electrical Specification

Ordering Code	Inductance (nH)	Available Tolerance	Q	L, Q Measuring Frequency	Self-Resonance Frequency (MHz)		DC Resistance (Ω)		Rated Current (mA)
			Min.	(MHz)	Min.	typ.	Max.	typ.	Max.
WLCM1005Z0□1N0TB	1.0	B、C、S	8	100	10,000	>13000	0.08	0.02	300
WLCM1005Z0□1N1TB	1.1	B、C、S	8	100	10,000	>13000	0.08	0.03	300
WLCM1005Z0□1N2TB	1.2	B、C、S	8	100	10,000	>13000	0.09	0.03	300
WLCM1005Z0□1N3TB	1.3	B、C、S	8	100	10,000	>13000	0.09	0.04	300
WLCM1005Z0□1N5TB	1.5	B、C、S	8	100	10,000	>13000	0.10	0.05	300
WLCM1005Z0□1N6TB	1.6	B、C、S	8	100	10,000	>13000	0.10	0.05	300
WLCM1005Z0□1N8TB	1.8	B、C、S	8	100	10,000	12,220	0.12	0.05	300
WLCM1005Z0□2N0TB	2.0	B、C、S	8	100	10,000	12,890	0.12	0.06	300
WLCM1005Z0□2N2TB	2.2	B、C、S	8	100	10,000	12,430	0.13	0.06	300
WLCM1005Z0□2N4TB	2.4	B、C、S	8	100	10,000	12,320	0.13	0.07	300
WLCM1005Z0□2N7TB	2.7	B、C、S	8	100	6,000	10,070	0.16	0.09	300
WLCM1005Z0□3N0TB	3.0	B、C、S	8	100	6,000	8,760	0.16	0.09	300
WLCM1005Z0□3N3TB	3.3	B、C、S	8	100	6,000	8,120	0.16	0.09	300
WLCM1005Z0□3N6TB	3.6	B、C、S	8	100	6,000	8,200	0.20	0.10	300
WLCM1005Z0□3N9TB	3.9	B、C、S	8	100	6,000	8,390	0.20	0.10	300
WLCM1005Z0□4N3TB	4.3	B、C、S	8	100	6,000	7,500	0.20	0.11	300
WLCM1005Z0□4N7TB	4.7	B、C、S	8	100	6,000	7,010	0.20	0.11	300
WLCM1005Z0□5N1TB	5.1	B、C、S	8	100	5,300	6,340	0.23	0.13	300
WLCM1005Z0□5N6TB	5.6	B、C、S	8	100	4,500	5,760	0.23	0.13	300
WLCM1005Z0□6N2TB	6.2	B、C、S	8	100	4,500	5,490	0.25	0.15	300
WLCM1005Z0□6N8TB	6.8	G、H、J	8	100	4,500	5,430	0.25	0.14	300
WLCM1005Z0□7N5TB	7.5	G、H、J	8	100	4,200	5,000	0.28	0.16	300
WLCM1005Z0□8N2TB	8.2	G、H、J	8	100	3,700	4,660	0.28	0.17	300
WLCM1005Z0□9N1TB	9.1	G、H、J	8	100	3,400	4,400	0.30	0.22	300
WLCM1005Z0□10NTB	10	G、H、J	8	100	3,400	4,120	0.31	0.24	300
WLCM1005Z0□12NTB	12	G、H、J	8	100	3,000	3,820	0.45	0.30	300
WLCM1005Z0□13NTB	13	G、H、J	8	100	3,000	3,820	0.50	0.35	300
WLCM1005Z0□15NTB	15	G、H、J	8	100	2,500	3,350	0.55	0.38	300
WLCM1005Z0□18NTB	18	G、H、J	8	100	2,200	2,970	0.65	0.37	300

# Multi-Layer High Frequency Inductors

## WLCW1005 Series

### Electrical Specification (continuous)

Ordering Code	Inductance (nH)	Available Tolerance	Q	L, Q Measuring Frequency	Self-Resonance Frequency (MHz)		DC Resistance ( $\Omega$ )		Rated Current (mA)
			Min.	(MHz)	Min.	typ.	Max.	typ.	Max.
WLCM1005Z0□22NTB	22	G、H、J	8	100	1,900	2,640	0.70	0.45	300
WLCM1005Z0□24NTB	24	H、J	8	100	1,700	2,640	0.70	0.45	300
WLCM1005Z0□27NTB	27	H、J	8	100	1,700	2,370	0.80	0.49	300
WLCM1005Z0□33NTB	33	H、J	8	100	1,600	2,040	0.90	0.63	200
WLCM1005Z0□39NTB	39	H、J	8	100	1,200	1,800	1.00	0.70	200
WLCM1005Z0□47NTB	47	H、J	8	100	1,100	1,660	1.10	0.82	200
WLCM1005Z0□56NTB	56	H、J	8	100	1,000	1,560	1.10	0.84	200
WLCM1005Z0□68NTB	68	H、J	8	100	800	1,330	1.20	0.99	200
WLCM1005Z0□82NTB	82	J	8	100	600	1,160	1.30	1.09	200
WLCM1005Z0□R10TB	100	J	8	100	600	1,020	1.60	1.19	200
WLCM1005Z0□R12TB	120	J	8	100	600	860	1.60	1.31	150
WLCM1005Z0□R15TB	150	J	8	100	550	800	3.20	2.00	140
WLCM1005Z0□R18TB	180	J	8	100	500	810	3.70	2.97	130
WLCM1005Z0□R22TB	220	J	8	100	450	700	4.20	3.29	120
WLCM1005Z0□R27TB	270	J	8	100	400	600	4.80	3.92	110

1. Tolerance: B=±0.1nH, C=±0.2nH, S=±0.3nH, G=±2%, H=±3%, J=±5%, K=±10%

2. Operating Temperature range: -55 °C to +125 °C

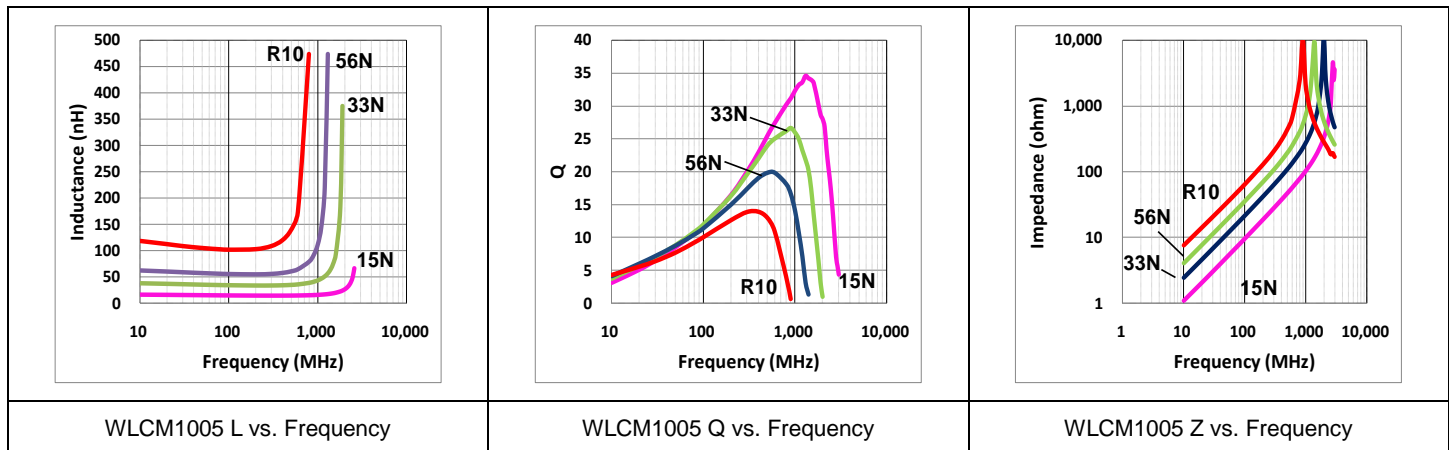
### L, Q vs. Frequency Characteristics

Ordering Code	Typical Inductance(nH)							Typical Q						
	100 MHz	500 MHz	800 MHz	900 MHz	1.8 GHz	2.0 GHz	2.4 GHz	100 MHz	500 MHz	800 MHz	900 MHz	1.8 GHz	2.0 GHz	2.4 GHz
WLCM1005Z0□1N0TB	1.0	1.0	1.0	1.0	1.0	1.0	1.0	12	29	38	41	63	71	75
WLCM1005Z0□1N1TB	1.1	1.1	1.1	1.1	1.1	1.1	1.1	11	29	37	40	60	67	72
WLCM1005Z0□1N2TB	1.2	1.2	1.2	1.2	1.2	1.2	1.2	11	29	38	41	61	68	73
WLCM1005Z0□1N3TB	1.3	1.3	1.3	1.3	1.3	1.3	1.3	11	30	38	41	61	67	72
WLCM1005Z0□1N5TB	1.5	1.5	1.5	1.5	1.5	1.5	1.5	11	27	35	38	57	63	68
WLCM1005Z0□1N6TB	1.6	1.5	1.5	1.5	1.5	1.5	1.5	11	28	35	38	57	64	68
WLCM1005Z0□1N8TB	1.8	1.7	1.7	1.7	1.7	1.7	1.8	11	26	33	36	53	58	61
WLCM1005Z0□2N0TB	2.0	2.0	2.0	2.0	2.0	2.1	2.1	10	23	29	31	45	49	52
WLCM1005Z0□2N2TB	2.2	2.1	2.1	2.1	2.2	2.2	2.2	10	24	31	33	48	52	55
WLCM1005Z0□2N4TB	2.4	2.3	2.3	2.3	2.4	2.4	2.4	10	25	31	34	49	53	57
WLCM1005Z0□2N7TB	2.7	2.7	2.7	2.7	2.8	2.8	2.9	11	27	35	37	54	58	60
WLCM1005Z0□3N0TB	3.0	2.9	2.9	3.0	3.1	3.1	3.2	10	25	32	34	49	53	55
WLCM1005Z0□3N3TB	3.3	3.2	3.2	3.2	3.4	3.4	3.5	11	25	32	35	50	54	56
WLCM1005Z0□3N6TB	3.6	3.5	3.5	3.5	3.7	3.8	3.9	10	24	31	33	46	49	49
WLCM1005Z0□3N9TB	3.9	3.7	3.7	3.8	3.9	4.0	4.1	11	24	30	33	46	49	51
WLCM1005Z0□4N3TB	4.3	4.1	4.2	4.2	4.4	4.4	4.6	11	26	33	35	50	53	54

### L,Q vs. Frequency Characteristics (continuous)

Ordering Code	Typical Inductance(nH)							Typical Q						
	100 MHz	500 MHz	800 MHz	900 MHz	1.8 GHz	2.0 GHz	2.4 GHz	100 MHz	500 MHz	800 MHz	900 MHz	1.8 GHz	2.0 GHz	2.4 GHz
WLCM1005Z0□4N7TB	4.7	4.5	4.5	4.5	4.8	4.9	5.1	11	25	32	35	49	51	53
WLCM1005Z0□5N1TB	5.1	4.9	4.9	4.9	5.2	5.3	5.6	11	25	32	35	46	48	49
WLCM1005Z0□5N6TB	5.6	5.5	5.5	5.5	6.0	6.2	6.7	11	25	32	35	46	48	49
WLCM1005Z0□6N2TB	6.2	6.1	6.1	6.1	6.7	6.8	7.3	11	26	32	34	46	48	49
WLCM1005Z0□6N8TB	6.8	6.6	6.7	6.7	7.4	7.6	8.2	11	26	32	35	46	48	48
WLCM1005Z0□7N5TB	7.5	7.1	7.2	7.3	7.8	8.1	8.8	11	26	32	35	46	48	48
WLCM1005Z0□8N2TB	8.2	8.0	8.1	8.2	9.4	9.9	11.1	11	26	32	34	42	42	40
WLCM1005Z0□9N1TB	9.1	8.7	8.8	8.8	9.9	10.2	11.1	11	25	31	34	42	42	40
WLCM1005Z0□10NTB	10.0	10.0	9.8	9.9	11.7	12.4	14.4	11	23	29	31	37	37	34
WLCM1005Z0□12NTB	12.0	11.7	12.0	12.2	15.1	16.3	20.1	11	24	31	33	37	36	30
WLCM1005Z0□13NTB	13.0	12.7	13.0	13.2	16.1	17.3	21.0	11	24	31	33	37	36	30
WLCM1005Z0□15NTB	15.0	14.9	15.5	15.8	22.8	26.4	41.8	11	23	30	32	35	33	28
WLCM1005Z0□18NTB	18.0	17.8	18.4	18.7	24.9	27.7	37.7	11	23	28	29	30	28	22
WLCM1005Z0□22NTB	22.0	21.8	23.1	23.8	40.9	52.7	156.0	11	22	27	28	22	18	6
WLCM1005Z0□24NTB	24.0	23.8	25.1	25.8	42.9	54.7	158.0	11	22	27	28	22	18	6
WLCM1005Z0□27NTB	27.0	27.1	29.2	30.3	66.8	106.9	-	11	22	26	27	16	11	4
WLCM1005Z0□33NTB	33.0	33.2	36.3	37.9	109.0	259.0	-	11	22	25	26	12	5	-
WLCM1005Z0□39NTB	39.0	40.2	45.9	49.1	-	-	-	11	20	22	22	-	-	-
WLCM1005Z0□47NTB	47.0	49.1	57.2	61.7	-	-	-	11	20	21	21	-	-	-
WLCM1005Z0□56NTB	56.0	59.2	71.8	79.3	-	-	-	11	19	19	18	-	-	-
WLCM1005Z0□68NTB	68.0	74.7	99.4	116.3	-	-	-	11	18	17	15	-	-	-
WLCM1005Z0□82NTB	82.0	94.7	140.8	179.5	-	-	-	11	18	15	12	-	-	-
WLCM1005Z0□R10TB	100.0	117.6	193.7	269.9	-	-	-	11	17	12	9	-	-	-
WLCM1005Z0□R12TB	120.0	159.8	450.4	-	-	-	-	11	16	7	-	-	-	-
WLCM1005Z0□R15TB	150.0	207.2	-	-	-	-	-	11	14	-	-	-	-	-
WLCM1005Z0□R18TB	180.0	-	-	-	-	-	-	12	-	-	-	-	-	-
WLCM1005Z0□R22TB	220.0	-	-	-	-	-	-	12	-	-	-	-	-	-
WLCM1005Z0□R27TB	270.0	-	-	-	-	-	-	12	-	-	-	-	-	-

### Characteristic Curve



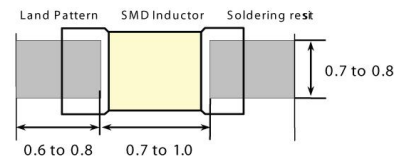
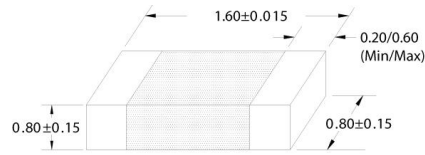
# Multi-Layer High Frequency Inductors WLCM1608 Series

## Multi-Layer High Frequency Inductors WLCM1608 Series

### Mechanical Dimensions

(Unit: mm)

WLCM1608



Recommend Pattern

### Electrical Specification

Ordering Code	Inductance (nH)	Available Tolerance	Q	L, Q Measuring Frequency	Self-Resonance Frequency (MHz)		DC Resistance (Ω)		Rated Current (mA)
			Min.	(MHz)	Min.	typ.	Max.	typ.	Max.
WLCM1608Z0□1N0TB	1.0	S	8	100	10,000	>13000	0.05	0.01	1000
WLCM1608Z0□1N2TB	1.2	S	8	100	10,000	>13000	0.05	0.02	1000
WLCM1608Z0□1N5TB	1.5	S	8	100	10,000	>13000	0.10	0.03	1000
WLCM1608Z0□1N8TB	1.8	S	8	100	10,000	>13000	0.10	0.04	1000
WLCM1608Z0□2N2TB	2.2	S	8	100	8,000	11690	0.10	0.05	1000
WLCM1608Z0□2N7TB	2.7	S	10	100	7,000	8930	0.13	0.06	1000
WLCM1608Z0□3N3TB	3.3	S	10	100	6,000	6440	0.13	0.07	1000
WLCM1608Z0□3N9TB	3.9	S	10	100	6,000	7280	0.15	0.08	1000
WLCM1608Z0□4N7TB	4.7	S	10	100	5,000	6470	0.20	0.09	1000
WLCM1608Z0□5N6TB	5.6	S	10	100	4,000	5230	0.23	0.10	600
WLCM1608Z0□6N8TB	6.8	J	10	100	4,000	5470	0.25	0.11	600
WLCM1608Z0□8N2TB	8.2	J	10	100	3,500	4460	0.28	0.14	600
WLCM1608Z0□10NTB	10	J	12	100	3,400	4360	0.30	0.15	600
WLCM1608Z0□12NTB	12	J	12	100	2,600	3480	0.35	0.17	600
WLCM1608Z0□15NTB	15	J	12	100	2,300	3310	0.40	0.19	600
WLCM1608Z0□18NTB	18	J	12	100	2,000	3080	0.45	0.21	600
WLCM1608Z0□22NTB	22	J	12	100	2,000	2670	0.50	0.29	600
WLCM1608Z0□27NTB	27	J	12	100	1,400	2270	0.55	0.27	600
WLCM1608Z0□33NTB	33	J	12	100	1,200	1970	0.60	0.36	600
WLCM1608Z0□39NTB	39	J	12	100	1,100	1830	0.65	0.37	500
WLCM1608Z0□47NTB	47	J	12	100	900	1670	0.70	0.47	500
WLCM1608Z0□56NTB	56	J	12	100	900	1530	0.75	0.46	500
WLCM1608Z0□68NTB	68	J	12	100	700	1360	0.85	0.51	400
WLCM1608Z0□82NTB	82	J	12	100	600	1290	0.95	0.57	300
WLCM1608Z0□R10TB	100	J	12	100	600	1090	1.00	0.69	300
WLCM1608Z0□R12TB	120	J	8	50	500	1030	1.20	0.74	300
WLCM1608Z0□R15TB	150	J	8	50	500	820	1.20	0.78	300
WLCM1608Z0□R18TB	180	J	8	50	400	690	1.30	0.92	300
WLCM1608Z0□R20TB	200	J	8	50	400	630	1.50	1.19	300
WLCM1608Z0□R22TB	220	J	8	50	400	630	1.50	1.19	300
WLCM1608Z0□R27TB	270	J	8	50	400	520	1.90	1.19	200
WLCM1608Z0□R33TB	330	J	8	50	350	450	2.10	1.50	200
WLCM1608Z0□R39TB	390	J	8	50	350	400	2.30	1.80	150
WLCM1608Z0□R47TB	470	J	8	50	300	360	2.60	2.04	150

1. Tolerance: B=±0.1nH, S=±0.3nH, G=±2%, J=±5%, K=±10%

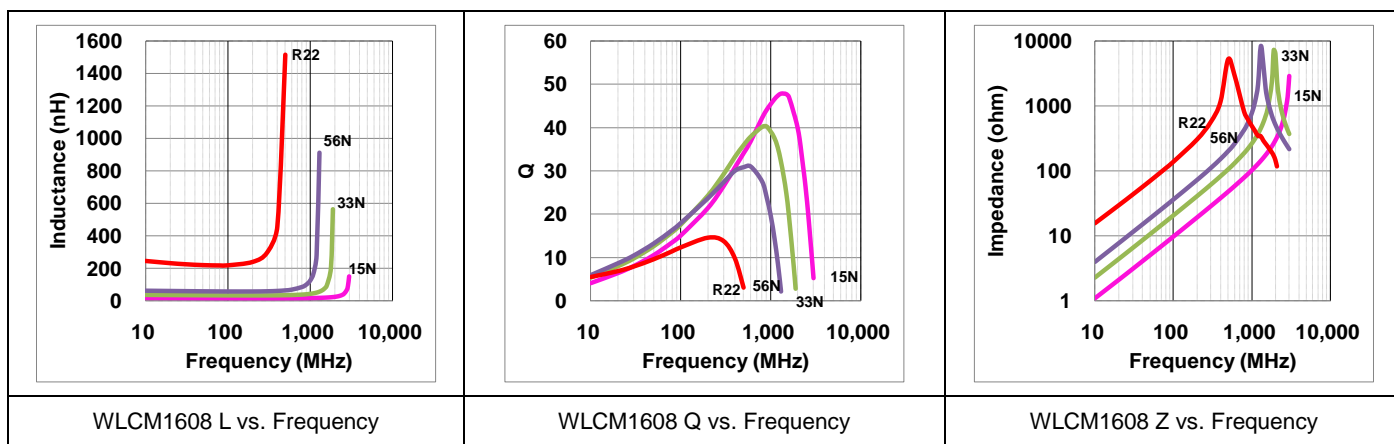
2. Operating Temperature range: -40 °C to +85 °C



### L,Q vs. Frequency Characteristics

Ordering Code	Typical Inductance(nH)							Typical Q						
	100 MHz	500 MHz	800 MHz	900 MHz	1.8 GHz	2.0 GHz	2.4 GHz	100 MHz	500 MHz	800 MHz	900 MHz	1.8 GHz	2.0 GHz	2.4 GHz
WLCM1608Z0□1N0TB	1.0	1.1	1.1	1.1	1.1	1.1	1.0	14	40	53	60	93	32	174
WLCM1608Z0□1N2TB	1.2	1.2	1.2	1.2	1.2	1.2	1.1	14	38	49	54	84	32	143
WLCM1608Z0□1N5TB	1.5	1.6	1.6	1.6	1.6	1.5	1.5	12	31	39	43	62	33	88
WLCM1608Z0□1N8TB	1.8	1.8	1.8	1.8	1.8	1.8	1.7	13	34	42	46	68	37	97
WLCM1608Z0□2N2TB	2.2	2.2	2.2	2.2	2.2	2.2	2.2	14	36	46	50	73	42	101
WLCM1608Z0□2N7TB	2.7	2.7	2.7	2.7	2.7	2.7	2.7	14	36	47	45	72	45	94
WLCM1608Z0□3N3TB	3.3	3.3	3.3	3.3	3.5	3.5	3.6	14	37	47	50	67	47	77
WLCM1608Z0□3N9TB	3.9	3.9	3.9	3.9	4.0	4.0	4.1	15	36	46	49	66	48	81
WLCM1608Z0□4N7TB	4.7	4.6	4.6	4.7	4.9	4.9	5.1	15	39	50	53	70	53	80
WLCM1608Z0□5N6TB	5.6	5.5	5.6	5.6	6.1	6.3	6.7	15	39	50	54	67	52	69
WLCM1608Z0□6N8TB	6.8	6.7	6.7	6.8	7.3	7.5	7.9	15	38	49	52	66	53	66
WLCM1608Z0□8N2TB	8.2	8.1	8.2	8.3	9.5	9.9	11.0	16	37	48	50	59	49	54
WLCM1608Z0□10NTB	10.0	9.9	10.1	10.2	11.7	12.3	13.9	16	39	49	52	60	50	52
WLCM1608Z0□12NTB	12.0	12.2	12.6	12.8	16.6	18.4	24.4	16	36	46	48	47	39	31
WLCM1608Z0□15NTB	15.0	15.1	15.6	15.9	21.0	23.4	31.9	17	40	50	52	49	41	31
WLCM1608Z0□18NTB	18.0	18.1	18.9	19.3	27.7	32.2	52.2	17	39	48	50	43	35	21
WLCM1608Z0□22NTB	22.0	22.3	23.8	24.6	45.7	63.5	521.1	17	39	46	47	29	19	1
WLCM1608Z0□27NTB	27.0	27.8	30.3	31.6	85.8	191.2	-	18	39	45	46	19	8	-
WLCM1608Z0□33NTB	33.0	34.9	38.8	40.9	-	-	-	18	39	43	43	-	-	-
WLCM1608Z0□39NTB	39.0	41.3	47.7	51.2	-	-	-	19	36	39	37	-	-	-
WLCM1608Z0□47NTB	47.0	50.0	58.9	64.0	-	-	-	17	34	36	34	-	-	-
WLCM1608Z0□56NTB	56.0	62.0	77.7	87.5	-	-	-	19	35	34	31	-	-	-
WLCM1608Z0□68NTB	68.0	76.8	103.2	121.7	-	-	-	18	33	29	25	-	-	-
WLCM1608Z0□82NTB	82.0	96.5	145.3	187.2	-	-	-	19	32	25	20	-	-	-
WLCM1608Z0□R10TB	100.0	123.7	222.4	343.5	-	-	-	18	30	19	12	-	-	-
WLCM1608Z0□R12TB	120.0	156.0	355.0	-	-	-	-	19	28	14	-	-	-	-
WLCM1608Z0□R15TB	150.0	227.9	-	-	-	-	-	18	21	-	-	-	-	-
WLCM1608Z0□R18TB	180.0	336.8	-	-	-	-	-	17	17	-	-	-	-	-
WLCM1608Z0□R20TB	220.0	520.7	-	-	-	-	-	16	13	-	-	-	-	-
WLCM1608Z0□R22TB	270.0	-	-	-	-	-	-	16	-	-	-	-	-	-
WLCM1608Z0□R27TB	330.0	-	-	-	-	-	-	14	-	-	-	-	-	-
WLCM1608Z0□R33TB	390.0	-	-	-	-	-	-	14	-	-	-	-	-	-
WLCM1608Z0□R39TB	470.0	-	-	-	-	-	-	13	-	-	-	-	-	-

### Characteristic Curve



# SMD AIR WOUND COIL WLAC291

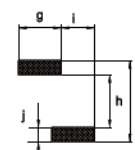
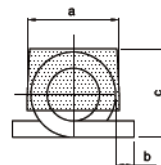
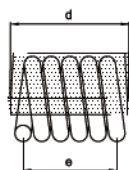
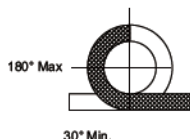
## SMD Air Wound Coil WLAC291 Series

### Mechanical Dimensions

(Unit: mm)

WLAC291A

WLAC291B



Recommend Pattern

Series	a	b	c	d	e
WLAC291A	3.05 (Max.)	0.58±0.38	3.18 (Max.)	3.68 (Max.)	2.92±0.25
WLAC291B	3.05 (Max.)	0.58±0.38	3.18 (Max.)	6.86 (Max.)	5.84±0.25

### Land Pattern

(Unit: mm)

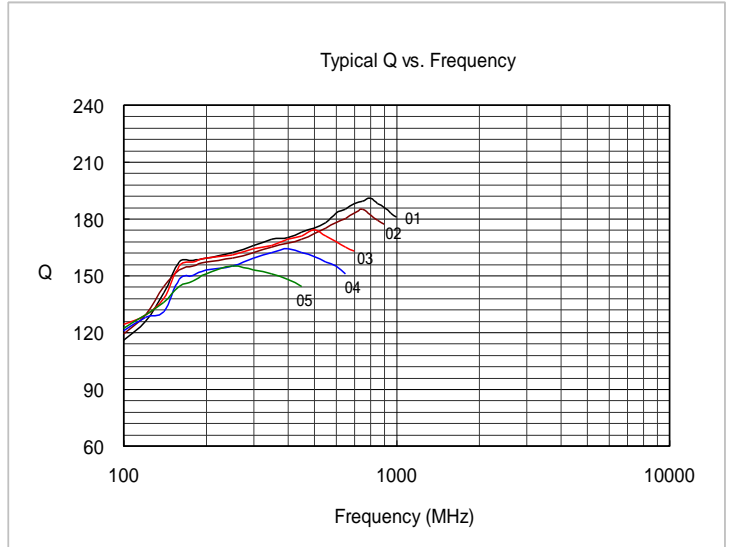
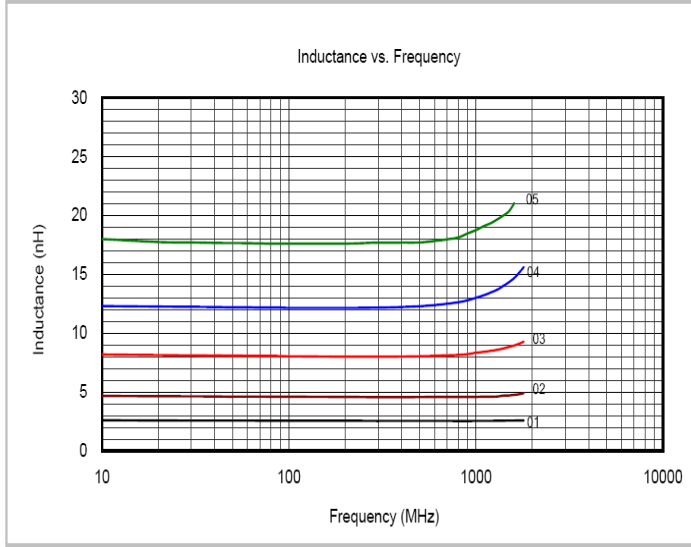
Series	f	g	h	i	j
WLAC291A	4.19	3.30	1.65	2.79	1.27
WLAC291B	7.24	3.30	4.70	2.79	1.27

### Electrical Specification

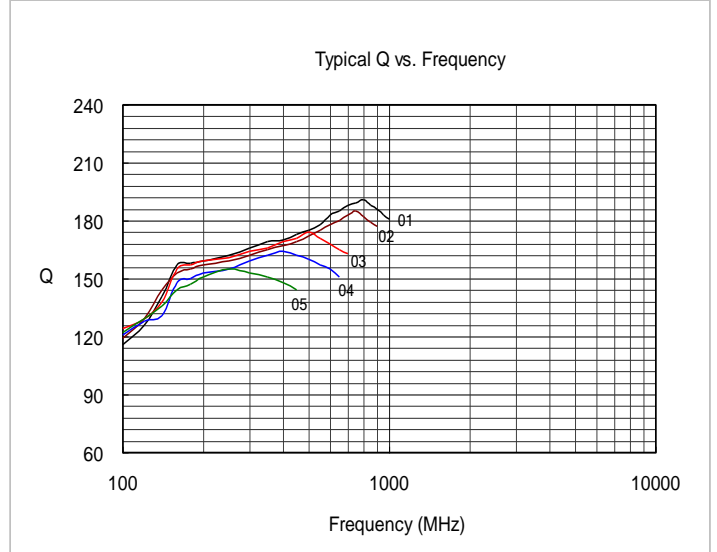
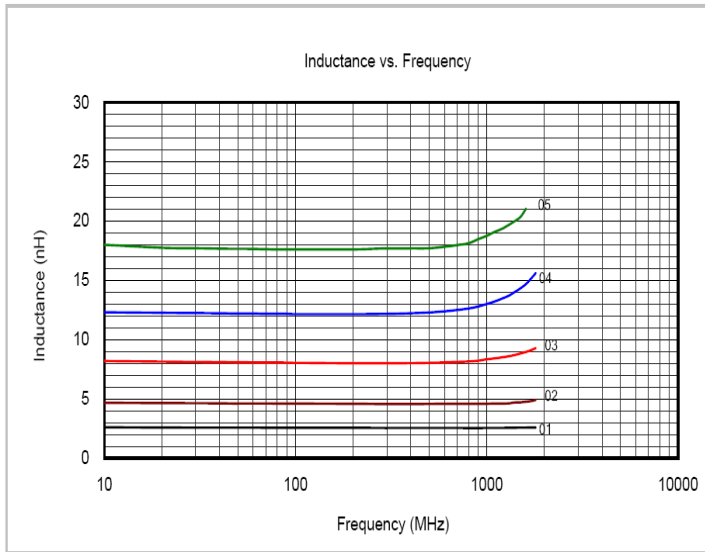
Part Number	Turns	Tolerance	Inductance (nH)	Q (Min.)	Test Freq (MHz)	DCR (mΩ) Max.	SRF (GHz) Min.	Rated Current (A) Max.
WLAC291AZ0□T01PB	1	K	2.5	145	150	1.1	12.5	4.0
WLAC291AZ0□T02PB	2	J、K	5.0	140	150	1.8	6.5	4.0
WLAC291AZ0□T03PB	3	G、J	8.0	140	150	2.6	5.0	4.0
WLAC291AZ0□T04PB	4	G、J	12.5	137	150	3.4	3.3	4.0
WLAC291AZ0□T05PB	5	G、J	18.5	132	150	3.9	2.5	4.0
WLAC291BZ0□T06PB	6	G、J	17.5	100	150	4.5	2.2	4.0
WLAC291BZ0□T07PB	7	G、J	22.0	102	150	5.2	2.1	4.0
WLAC291BZ0□T08PB	8	G、J	28.0	105	150	6.0	1.8	4.0
WLAC291BZ0□T09PB	9	G、J	35.5	112	150	6.8	1.5	4.0
WLAC291BZ0□T10PB	10	G、J	43.0	106	150	7.9	1.2	4.0

1. Tolerance : G=± 2% ; J=± 5% ; K= ± 10%
2. Test Equipment :  
L/Q : HP-4291B With HP16193A test fixture or equivalent.  
SRF : HP8753E or equivalent.  
RDC : Chroma 16502 or equivalent.
3. Operating temperature range : -40°C to +125°C
4. For Temperature Rise : 15°C
5. Storage Temp. : -40°C to +85°C.
6. MSL : Level 1

## Characteristic Curve WLAC291A



## WLAC291B



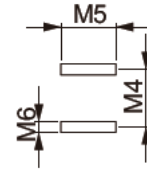
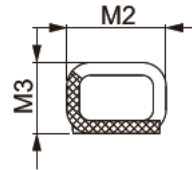
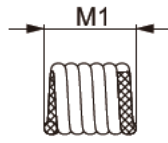
# SMD Square Air Wound Coil WLQC0806 Series

## SMD Square Air Wound Coil WLQC0806 Series

### Mechanical Dimensions

(Unit: mm)

WLQC0806



Recommend Pattern

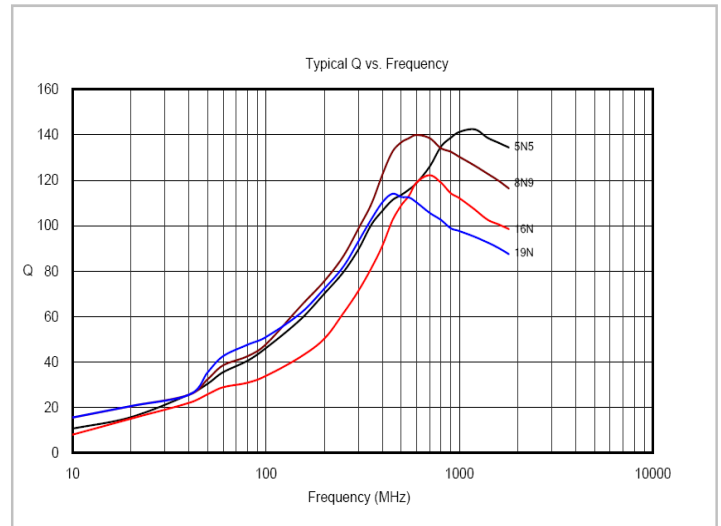
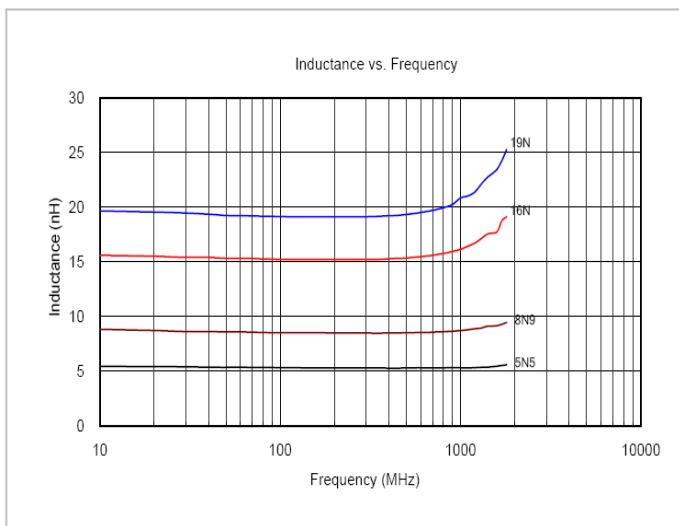
Part Number	M1	M2	M3	M4	M5	M6
WLQC0806Z0□5N5PB	1.346±0.102	1.829±0.254	1.397±0.102	0.962	2.6	0.51
WLQC0806Z0□6N0PB	1.295±0.102	1.829±0.254	1.397±0.102	1.020	2.6	0.51
WLQC0806Z0□8N9PB	1.626±0.152	1.829±0.254	1.397±0.102	1.320	2.6	0.51
WLQC0806Z0□12NPB	1.930±0.152	1.829±0.254	1.397±0.102	1.630	2.6	0.51
WLQC0806Z0□16NPB	2.286±0.152	1.829±0.254	1.397±0.102	1.960	2.6	0.51
WLQC0806Z0□19NPB	2.591±0.152	1.829±0.254	1.397±0.102	2.290	2.6	0.51

### Electrical Specification

Part Number	Turns	Tolerance	Inductance (nH)	Q Min.	Test Freq (MHz)	DCR (mΩ) Max.	SRF (GHz) Typ.	Rated Current (A) Max.
WLQC0806Z0□5N5PB	3	J	5.5	60	400	3.4	4.9	2.9
WLQC0806Z0□6N0PB	3	J	6.0	64	400	6.0	5.2	2.9
WLQC0806Z0□8N9PB	4	J	8.9	90	400	7.0	4.3	2.9
WLQC0806Z0□12NPB	5	J	12.3	90	400	8.0	4.8	2.9
WLQC0806Z0□16NPB	6	J	15.7	90	400	9.0	4.4	2.9
WLQC0806Z0J19NPB	7	J	19.4	90	400	10.0	4.0	2.9

1. Tolerance : J=± 5% ; K= ± 10%
2. Test Equipment :  
L/Q : HP-4291B With HP16193A test fixture or equivalent.  
SRF : HP8753E or equivalent.  
RDC : Chroma 16502 or equivalent.
3. Operating temperature range : -40°C to +125°C.
4. Electrical specifications at 25°C.
5. Storage Temp. : -40°C to +85°C.
6. MSL : Level 1

### Characteristic Curve

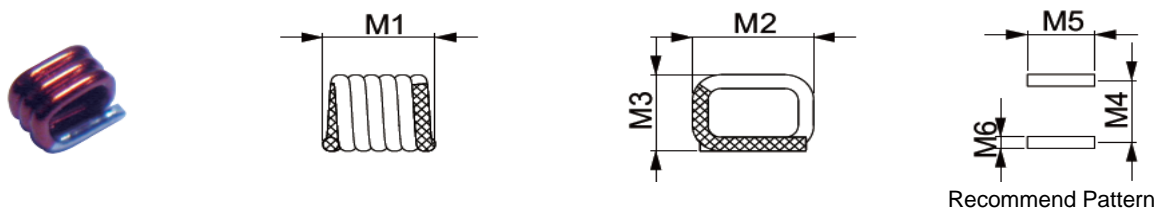


## SMD Square Air Wound Coil WLQC0807 Series

### Mechanical Dimensions

(Unit: mm)

WLQC0807



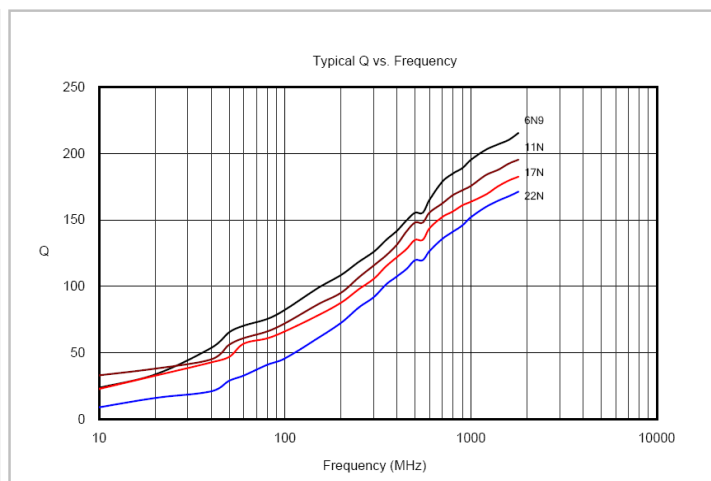
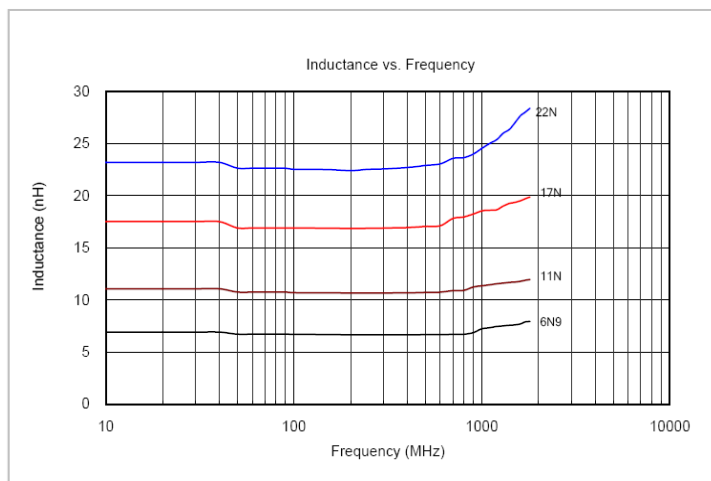
Part Number	M1	M2	M3	M4	M5	M6
WLQC0807Z0□6N9PB	1.295±0.102	1.829±0.254	1.524±0.254	1.02	2.6	0.51
WLQC0807Z0□10NPB	1.626±0.152	1.829±0.254	1.524±0.254	1.32	2.6	0.51
WLQC0807Z0□11NPB	1.549±0.152	1.829±0.254	1.524±0.254	1.24	2.6	0.51
WLQC0807Z0□14NPB	1.930±0.152	1.829±0.254	1.524±0.254	1.63	2.6	0.51
WLQC0807Z0□17NPB	2.286±0.152	1.829±0.254	1.524±0.254	1.96	2.6	0.51
WLQC0807Z0□22NPB	2.591±0.152	1.829±0.254	1.524±0.254	2.29	2.6	0.51

### Electrical Specification

Part Number	Turns	Tolerance	Inductance (nH)	Q Min.	Test Freq (MHz)	DCR (mΩ) Max.	SRF (GHz) Typ.	Rated Current (A) Max.
WLQC0807Z0□6N9PB	3	J	6.9	100	400	6.0	4.6	2.7
WLQC0807Z0□10NPB	4	J	10.2	100	400	7.0	4.0	2.7
WLQC0807Z0□11NPB	4	J	11.2	90	400	6.3	3.6	2.7
WLQC0807Z0□14NPB	5	J	13.7	100	400	8.0	4.3	2.7
WLQC0807Z0□17NPB	6	J	17.0	100	400	9.0	4.0	2.7
WLQC0807Z0□22NPB	7	J	22.0	100	400	10.0	3.5	2.7

1. Tolerance : J=± 5% ; K=± 10%
2. Test Equipment  
L/Q : HP-4291B With HP16193A test fixture or equivalent.  
SRF : HP8753E or equivalent.  
RDC : Chroma 16502 or equivalent.
3. Operating temperature range : -40°C to +125°C.
4. Electrical specifications at 25°C.
5. Storage Temp. : -40°C to +85°C.
6. MSL : Level 1

### Characteristic Curve





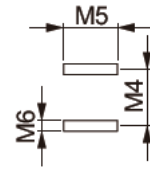
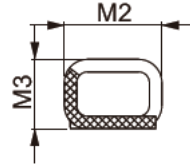
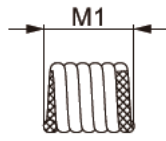
# SMD Square Air Wound Coil WLQC0908 Series

## SMD Square Air Wound Coil WLQC0908 Series

### Mechanical Dimensions

(Unit: mm)

WLQC0908



Recommend Pattern

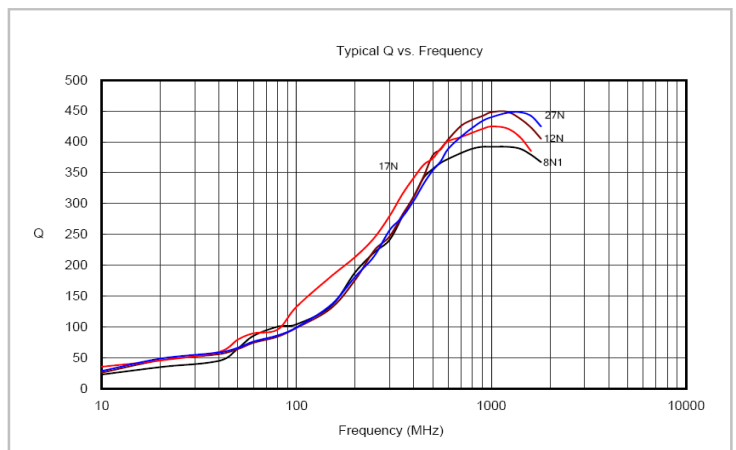
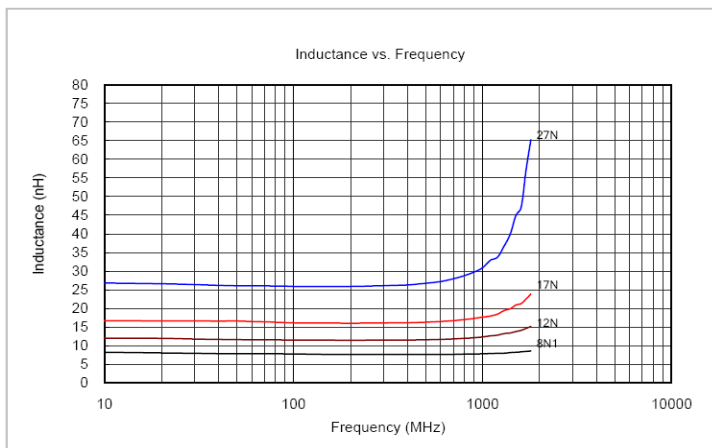
Part Number	M1	M2	M3	M4	M5	M6
WLQC0908Z0□8N1PB	1.473±0.152	2.134±0.152	1.829±0.152	1.12	2.8	0.64
WLQC0908Z0□12NPB	1.854±0.152	2.134±0.152	1.829±0.152	1.45	2.8	0.64
WLQC0908Z0□15NPB	1.549±0.152	2.134±0.152	1.829±0.152	1.24	2.8	0.64
WLQC0908Z0□17NPB	2.210±0.152	2.134±0.152	1.829±0.152	1.83	2.8	0.64
WLQC0908Z0□22NPB	2.565±0.152	2.134±0.152	1.829±0.152	2.18	2.8	0.64
WLQC0908Z0□23NPB	2.235±0.152	2.134±0.152	1.829±0.152	1.90	2.8	0.64
WLQC0908Z0□25NPB	2.972±0.152	2.134±0.152	1.829±0.152	2.57	2.8	0.64
WLQC0908Z0□27NPB	2.972±0.152	2.134±0.152	1.829±0.152	2.57	2.8	0.64

### Electrical Specification

Part Number	Turns	Tolerance	Inductance (nH)	Q Min.	Test Freq (MHz)	DCR (mΩ) Max.	SRF (GHz) Typ.	Rated Current (A) Max.
WLQC0908Z0□8N1PB	3	J	8.1	130	400	6.0	5.2	4.4
WLQC0908Z0□12NPB	4	J	12.1	130	400	7.0	4.3	4.4
WLQC0908Z0□15NPB	4	J	14.7	90	400	7.2	3.0	4.4
WLQC0908Z0□17NPB	5	J	16.6	130	400	8.0	3.4	4.4
WLQC0908Z0□22NPB	6	J	21.5	130	400	9.0	3.7	4.4
WLQC0908Z0□23NPB	6	J	23.0	130	400	10.0	2.6	4.4
WLQC0908Z0□25NPB	7	J	25.0	130	400	10.0	2.5	4.4
WLQC0908Z0□27NPB	7	J	27.3	130	400	10.0	3.2	4.4

1. Tolerance : J=± 5% ; K=± 10%
2. Test Equipment :  
L/Q : HP-4291B With HP16193A test fixture or equivalent.  
SRF : HP8753E or equivalent.  
RDC : Chroma 16502 or equivalent.
3. Operating temperature range : -40°C to +125°C.
4. Electrical specifications at 25°C.
5. Storage Temp. : -40°C to +85°C.
6. MSL : Level 1

### Characteristic Curve

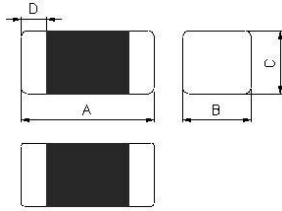
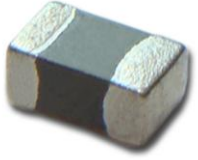


## Ferrite Chip Inductor WLF1005 Series

### Mechanical Dimensions

(Unit: mm)

WLF1005



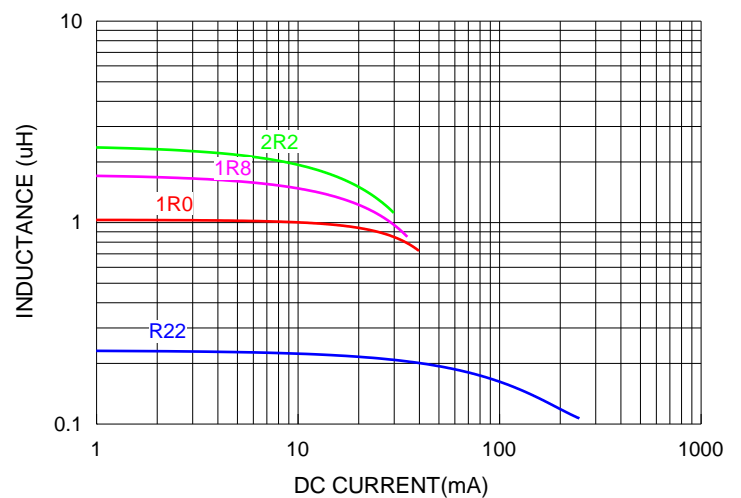
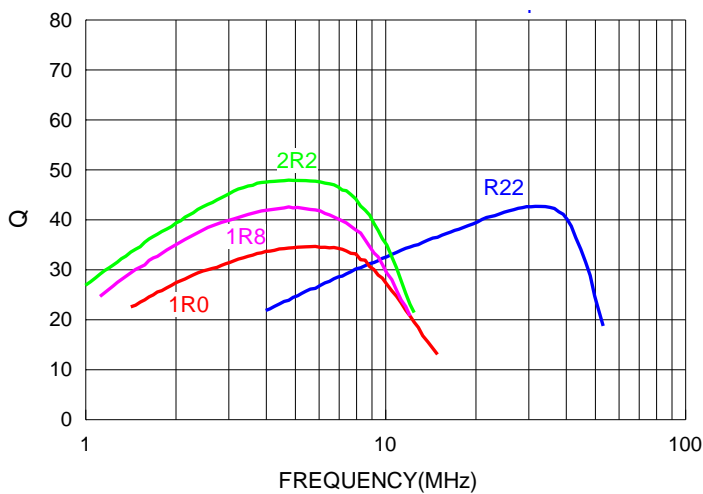
WLF1 Series	A	B	C	D
WLF1005 (EIA 0402)	1.00±0.1 mm	0.50±0.1 mm	0.50±0.1 mm	0.25±0.1 mm

### Electrical Specification

Walsin Part Number	L (uH)	Tolerance	Test Frequency (MHz)	Q (min.)	DC Resistance (Ω) max.	Rated Current (mA) max.	SRF (MHz) min.
WLF1005Z0MR22TB	0.22	M	60mV / 25 MHz	10 / 25MHz	1.20	25	110
WLF1005Z0M1R0TB	1.0	M	60mV / 10 MHz	20 / 10MHz	0.90	15	40
WLF1005Z0M1R8TB	1.8	M	60mV / 10 MHz	20 / 10MHz	1.45	15	30
WLF1005Z0M2R2TB	2.2	M	60mV / 10 MHz	20 / 10MHz	1.70	10	28

NOTE::TOLERANCE M=±20%

### Characteristic Curve



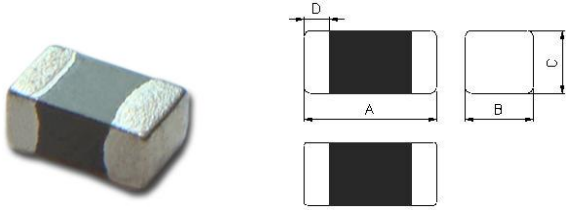
# Ferrite Chip Inductor WLFI1608

## Ferrite Chip Inductor WLFI1608 Series

### Mechanical Dimensions

(Unit: mm)

WLFI1608



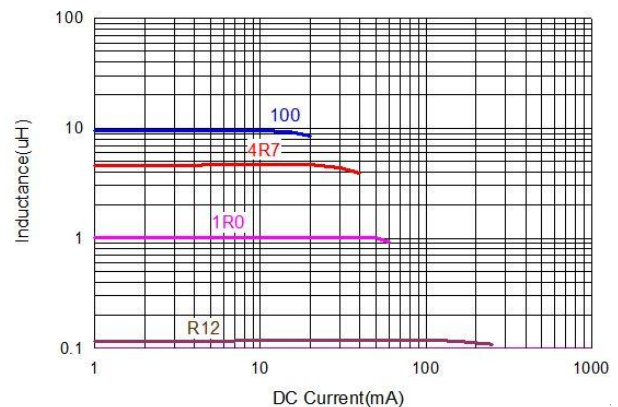
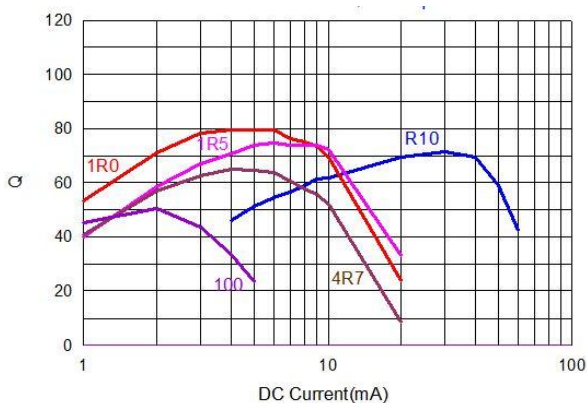
WLFI Series	A	B	C	D
WLFI1608 (EIA 0603)	1.60±0.15 mm	0.80±0.15 mm	0.80±0.15 mm	0.30±0.2 mm

### Electrical Specification

Walsin Part Number	L (uH)	Tolerance	Test Frequency (MHz)	Q (min.)	DC Resistance (Ω) max.	Rated Current (mA) max.	SRF (MHz) min.
WLFI1608Z0M47NTB	0.047	M	60mV / 50MHz	10 / 50MHz	0.30	50	260
WLFI1608Z0M68NTB	0.068	M	60mV / 50MHz	10 / 50MHz	0.30	50	250
WLFI1608Z0M82NTB	0.082	M	60mV / 50MHz	10 / 50MHz	0.30	50	245
WLFI1608Z0MR10TB	0.10	M	60mV / 25MHz	15 / 25MHz	0.50	50	240
WLFI1608Z0MR12TB	0.12	M	60mV / 25MHz	15 / 25MHz	0.50	50	205
WLFI1608Z0MR15TB	0.15	M	60mV / 25MHz	15 / 25MHz	0.60	50	180
WLFI1608Z0MR18TB	0.18	M	60mV / 25MHz	15 / 25MHz	0.60	50	165
WLFI1608Z0MR22TB	0.22	M	60mV / 25MHz	15 / 25MHz	0.80	50	150
WLFI1608Z0MR27TB	0.27	M	60mV / 25MHz	15 / 25MHz	0.80	50	136
WLFI1608Z0MR33TB	0.33	M	60mV / 25MHz	15 / 25MHz	0.85	35	125
WLFI1608Z0MR39TB	0.39	M	60mV / 25MHz	15 / 25MHz	1.00	35	110
WLFI1608Z0MR47TB	0.47	M	60mV / 25MHz	15 / 25MHz	1.35	35	105
WLFI1608Z0MR56TB	0.56	M	60mV / 25MHz	15 / 25MHz	1.55	35	95
WLFI1608Z0MR68TB	0.68	M	60mV / 25MHz	15 / 25MHz	1.70	35	80
WLFI1608Z0MR82TB	0.82	M	60mV / 25MHz	15 / 25MHz	2.10	35	75
WLFI1608Z0M1R0TB	1.0	M	60mV / 10MHz	30 / 10MHz	0.60	25	70
WLFI1608Z0M1R5TB	1.5	M	60mV / 10MHz	30 / 10MHz	0.80	25	55
WLFI1608Z0M1R8TB	1.8	M	60mV / 10MHz	30 / 10MHz	0.95	25	50
WLFI1608Z0M2R2TB	2.2	M	60mV / 10MHz	30 / 10MHz	1.15	15	45
WLFI1608Z0M3R3TB	3.3	M	60mV / 10MHz	30 / 10MHz	1.55	15	38
WLFI1608Z0M4R7TB	4.7	M	60mV / 10MHz	30 / 10MHz	2.10	15	33
WLFI1608Z0M100TB	10.0	M	60mV / 2MHz	30 / 2MHz	2.55	15	17

NOTE:TOLERANCE M=±20%

### Characteristic Curve

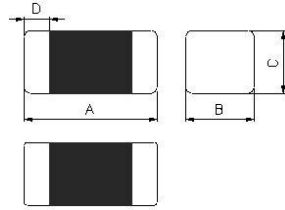
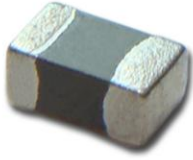


## Ferrite Chip Inductor WLF2012 Series

### Mechanical Dimensions

(Unit: mm)

WLF2012



WLF Series	A	B	Thickness C	D
WLF2012 (EIA 0805)	2.00±0.2 mm	1.25±0.2 mm	0.85±0.20 1.25±0.20 mm	0.50±0.30 mm

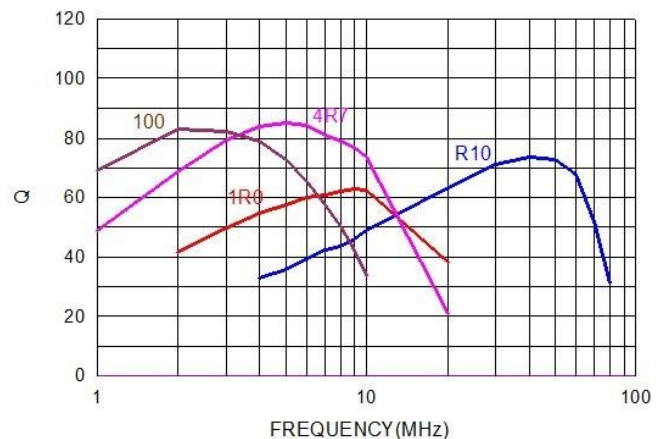
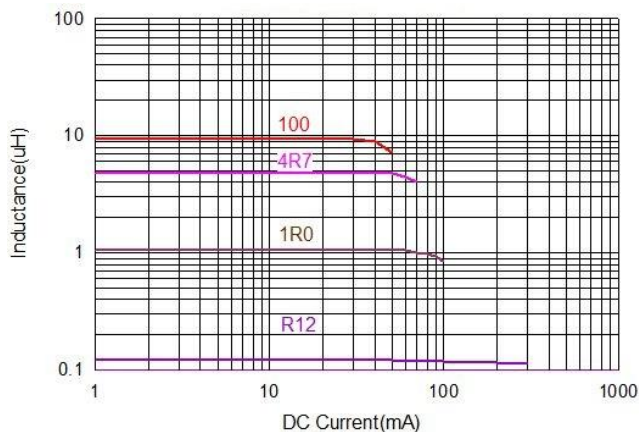
### Electrical Specification

Walsin Part Number	Thickness C size(mm)	L (uH)	Tolerance	Test Frequency (MHz)	Q (min.)	DC Resistance (Ω) max.	Rated Current (mA) max.	SRF (MHz) min.
WLF2012Z0M47NTB	0.85±0.20	0.047	M	60mV / 50MHz	15 / 50MHz	0.20	300	320
WLF2012Z0M68NTB	0.85±0.20	0.068	M	60mV / 50MHz	15 / 50MHz	0.20	300	280
WLF2012Z0M82NTB	0.85±0.20	0.082	M	60mV / 50MHz	15 / 50MHz	0.20	300	255
WLF2012Z0MR10TB	0.85±0.20	0.10	M	60mV / 25MHz	20 / 25MHz	0.30	250	235
WLF2012Z0MR12TB	0.85±0.20	0.12	M	60mV / 25MHz	20 / 25MHz	0.30	250	220
WLF2012Z0MR15TB	0.85±0.20	0.15	M	60mV / 25MHz	20 / 25MHz	0.40	250	200
WLF2012Z0MR18TB	0.85±0.20	0.18	M	60mV / 25MHz	20 / 25MHz	0.40	250	185
WLF2012Z0MR22TB	0.85±0.20	0.22	M	60mV / 25MHz	20 / 25MHz	0.50	250	170
WLF2012Z0MR27TB	0.85±0.20	0.27	M	60mV / 25MHz	20 / 25MHz	0.50	250	150
WLF2012Z0MR33TB	0.85±0.20	0.33	M	60mV / 25MHz	20 / 25MHz	0.55	250	145
WLF2012Z0MR39TB	0.85±0.20	0.39	M	60mV / 25MHz	25 / 25MHz	0.65	200	135
WLF2012Z0MR47PB	1.25±0.20	0.47	M	60mV / 25MHz	25 / 25MHz	0.65	200	125
WLF2012Z0MR56PB	1.25±0.20	0.56	M	60mV / 25MHz	25 / 25MHz	0.75	150	115
WLF2012Z0MR68PB	1.25±0.20	0.68	M	60mV / 25MHz	25 / 25MHz	0.80	150	105
WLF2012Z0M1R0TB	0.85±0.20	1.0	M	60mV / 10MHz	45 / 10MHz	0.40	50	75
WLF2012Z0M1R5TB	0.85±0.20	1.5	M	60mV / 10MHz	45 / 10MHz	0.50	50	60
WLF2012Z0M1R8TB	0.85±0.20	1.8	M	60mV / 10MHz	45 / 10MHz	0.60	50	55
WLF2012Z0M2R2TB	0.85±0.20	2.2	M	60mV / 10MHz	45 / 10MHz	0.65	30	50
WLF2012Z0M2R7PB	1.25±0.20	2.7	M	60mV / 10MHz	45 / 10MHz	0.75	30	45
WLF2012Z0M3R3PB	1.25±0.20	3.3	M	60mV / 10MHz	45 / 10MHz	0.80	30	41
WLF2012Z0M4R7PB	1.25±0.20	4.7	M	60mV / 10MHz	45 / 10MHz	1.00	30	35
WLF2012Z0M100PB	1.25±0.20	10.0	M	60mV / 2MHz	45 / 2MHz	1.15	15	24

NOTE1 :TOLERANCE M=±20%

NOTE2 :Thickness C size (mm) - 0.85mm, 4k pcs / reel ; 1.25mm, 2k pcs / reel

### Characteristic Curve



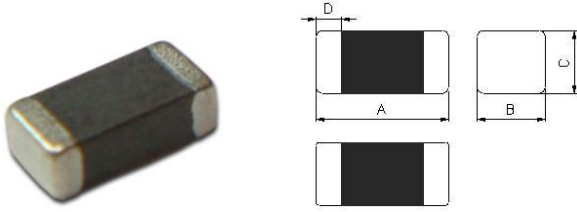
# Ferrite Chip Inductor WLF3216

## Ferrite Chip Inductor WLF3216 Series

### Mechanical Dimensions

(Unit: mm)

WLF3216



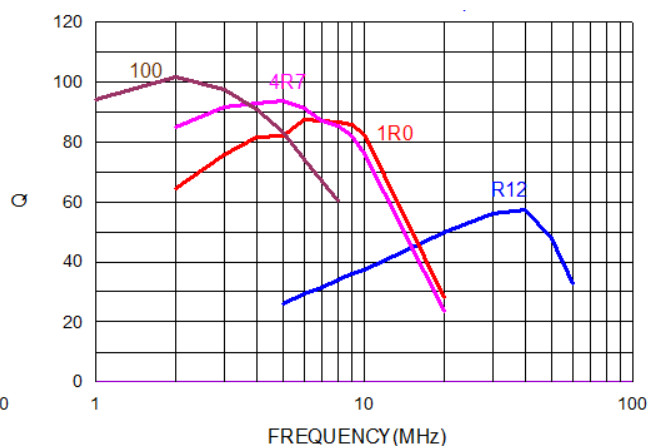
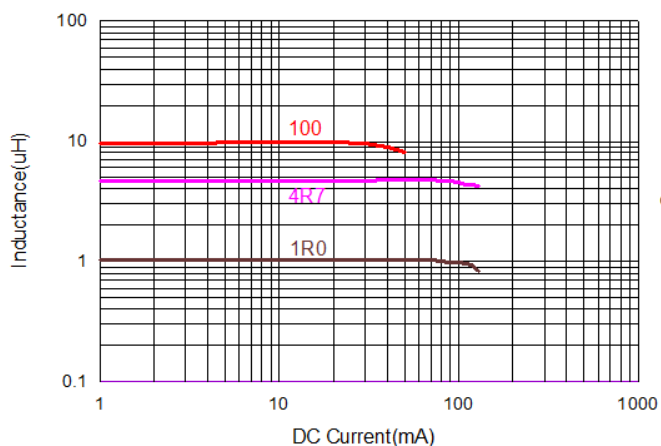
WLF3 Series	A	B	C	D
WLF3216 (EIA 1206)	3.20±0.20 mm	1.6±0.20 mm	1.10±0.30 mm	0.50±0.30 mm

### Electrical Specification

Walsin Part Number	L (uH)	Tolerance	Test Frequency (MHz)	Q (min.)	DC Resistance (Ω) max.	Rated Current (mA) max.	SRF (MHz) min.
WLF3216Z0M47NPB	0.047	M	60mV / 50MHz	20 / 50MHz	0.15	300	320
WLF3216Z0M68NPB	0.068	M	60mV / 50MHz	20 / 50MHz	0.25	300	280
WLF3216Z0MR10PB	0.10	M	60mV / 25MHz	20 / 25MHz	0.25	250	235
WLF3216Z0MR12PB	0.12	M	60mV / 25MHz	20 / 25MHz	0.30	250	220
WLF3216Z0MR15PB	0.15	M	60mV / 25MHz	20 / 25MHz	0.30	250	200
WLF3216Z0MR18PB	0.18	M	60mV / 25MHz	20 / 25MHz	0.40	250	185
WLF3216Z0MR22PB	0.22	M	60mV / 25MHz	20 / 25MHz	0.40	250	170
WLF3216Z0MR27PB	0.27	M	60mV / 25MHz	20 / 25MHz	0.50	250	150
WLF3216Z0MR33PB	0.33	M	60mV / 25MHz	20 / 25MHz	0.50	250	145
WLF3216Z0MR39PB	0.39	M	60mV / 25MHz	25 / 25MHz	0.60	250	135
WLF3216Z0MR47PB	0.47	M	60mV / 25MHz	25 / 25MHz	0.60	200	125
WLF3216Z0MR56PB	0.56	M	60mV / 25MHz	25 / 25MHz	0.70	200	115
WLF3216Z0MR68PB	0.68	M	60mV / 25MHz	25 / 25MHz	0.80	150	105
WLF3216Z0MR82PB	0.82	M	60mV / 25MHz	25 / 25MHz	0.90	150	100
WLF3216Z0M1R0PB	1.0	M	60mV / 10MHz	45 / 10MHz	0.40	100	75
WLF3216Z0M1R2PB	1.2	M	60mV / 10MHz	45 / 10MHz	0.50	100	65
WLF3216Z0M1R5PB	1.5	M	60mV / 10MHz	45 / 10MHz	0.50	50	60
WLF3216Z0M2R2PB	2.2	M	60mV / 10MHz	45 / 10MHz	0.60	50	50
WLF3216Z0M3R3PB	3.3	M	60mV / 10MHz	45 / 10MHz	0.70	50	41
WLF3216Z0M4R7PB	4.7	M	60mV / 10MHz	45 / 10MHz	0.90	50	35
WLF3216Z0M100PB	10.0	M	60mV / 2MHz	50 / 2MHz	1.00	25	24

NOTE::TOLERANCE M=±20%

### Characteristic Curve

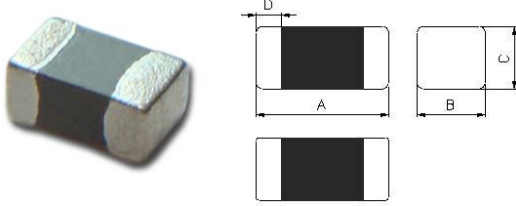


## Ferrite Chip Bead WLBD0402 Series

### Mechanical Dimensions

(Unit: mm)

WLBD0402

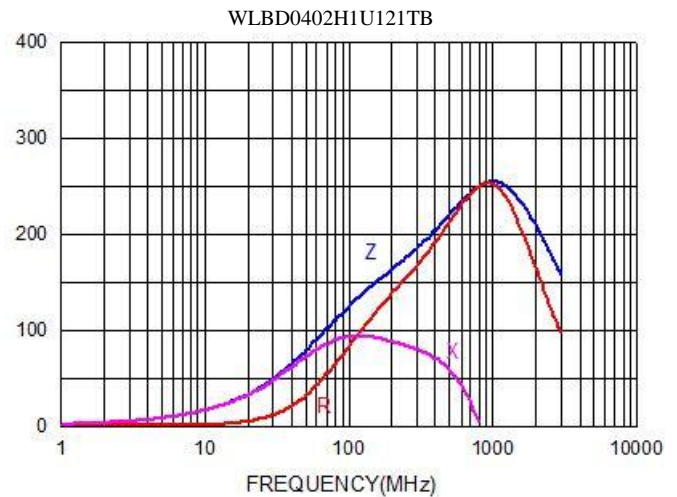
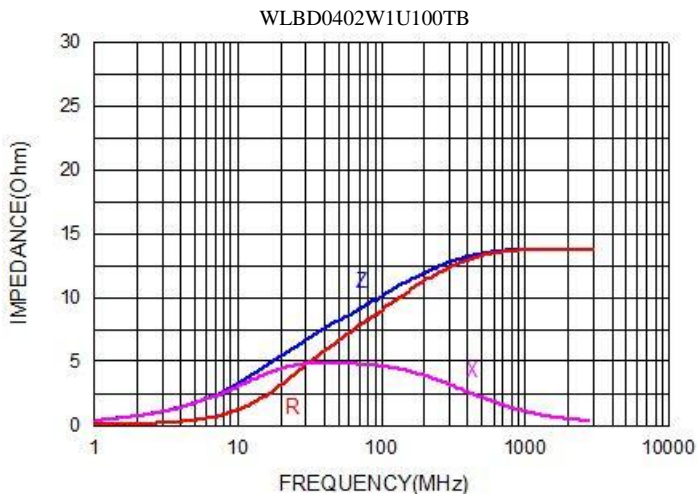


WLBD Series	A	B	C	D
WLBD0402 (EIA 01005)	0.40±0.02 mm	0.20±0.02 mm	0.20±0.02 mm	0.10+0.04/ -0.03 mm

### Electrical Specification

Walsin Part Number	Impedance (Ω)	Tolerance	Test Frequency (MHz)	DC Resistance (Ω) max.	Rated Current (mA) max.
WLBD0402W1U100TB	10±5 ohm	U	100	0.10	540
WLBD0402W1U700TB	70±25%	U	100	0.37	280
WLBD0402W1U121TB	120±25%	U	100	0.53	240
WLBD0402H1U750TB	75±25%	U	100	0.45	260
WLBD0402H1U121TB	120±25%	U	100	0.60	220

### Characteristic Curve





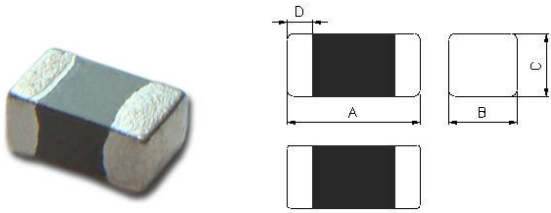
# Ferrite Chip Bead WLBD0603

## Ferrite Chip Bead WLBD0603 Series

### Mechanical Dimensions

(Unit: mm)

WLBD0603

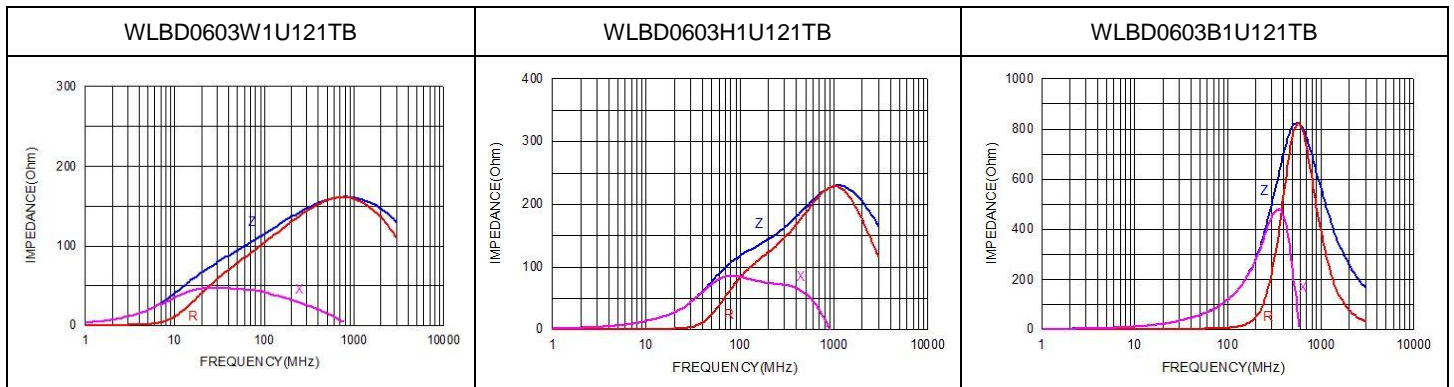


WLBD Series	A	B	C	D
WLBD0603 (EIA 0201)	0.60±0.03 mm	0.30±0.03 mm	0.30±0.03 mm	0.15±0.05 mm

### Electrical Specification

Walsin Part Number	Impedance (Ω)	Tolerance	Test Frequency (MHz)	DC Resistance (Ω) max.	Rated Current (mA) max.
WLBD0603W1U220TB	22±25%	U	100	0.065	500
WLBD0603W1U330TB	33±25%	U	100	0.07	500
WLBD0603W1U800TB	80±25%	U	100	0.40	200
WLBD0603W1U121TB	120±25%	U	100	0.45	200
WLBD0603W1U241TB	240±25%	U	100	0.65	200
WLBD0603W1U601TB	600±25%	U	100	1.20	150
WLBD0603H1U600TB	60±25%	U	100	0.25	200
WLBD0603H1U121TB	120±25%	U	100	0.40	200
WLBD0603H1U241TB	240±25%	U	100	0.80	200
WLBD0603H1U471TB	470±25%	U	100	1.05	100
WLBD0603H1U601TB	600±25%	U	100	1.20	100
WLBD0603B1U100TB	10±25%	U	100	0.25	200
WLBD0603B1U220TB	22±25%	U	100	0.45	200
WLBD0603B1U330TB	33±25%	U	100	0.55	150
WLBD0603B1U470TB	47±25%	U	100	0.70	150
WLBD0603B1U560TB	56±25%	U	100	1.00	100
WLBD0603B1U800TB	80±25%	U	100	1.30	100
WLBD0603B1U121TB	120±25%	U	100	1.50	100

### Characteristic Curve

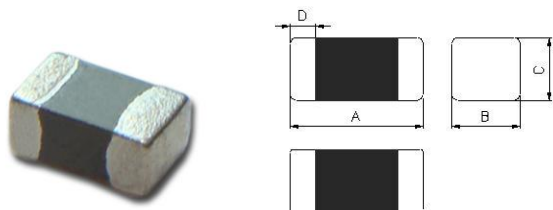


## Ferrite Chip Bead WLBD1005 Series

### Mechanical Dimensions

(Unit: mm)

WLBD1005

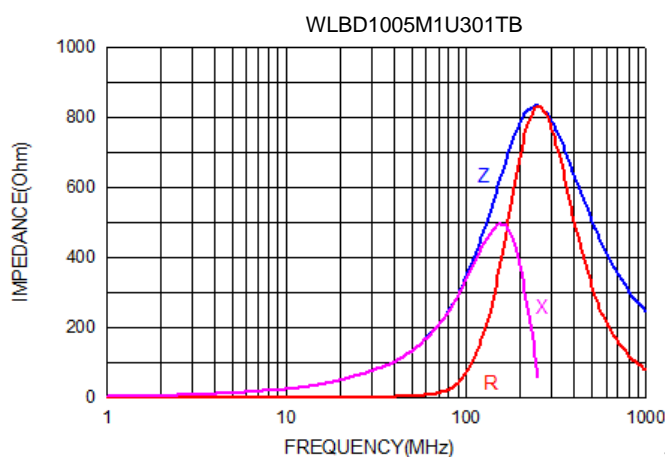
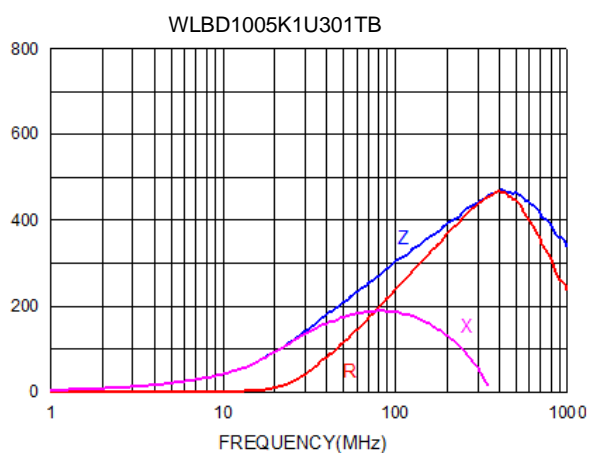


WLBD Series	A	B	C	D
WLBD1005 (EIA 0402)	1.00±0.10 mm	0.50±0.10 mm	0.50±0.10 mm	0.25±0.10 mm

### Electrical Specification

Walsin Part Number	Impedance (Ω)	Tolerance	Test Frequency (MHz)	DC Resistance (Ω) max.	Rated Current (mA) max.
WLBD1005K1U300TB	30±25%	U	100	0.20	300
WLBD1005K1U600TB	60±25%	U	100	0.25	300
WLBD1005K1U121TB	120±25%	U	100	0.30	100
WLBD1005K1U151TB	150±25%	U	100	0.30	100
WLBD1005K1U221TB	220±25%	U	100	0.40	100
WLBD1005K1U301TB	300±25%	U	100	0.50	100
WLBD1005K1U471TB	470±25%	U	100	0.65	100
WLBD1005K1U601TB	600±25%	U	100	0.80	80
WLBD1005K1U102TB	1000±25%	U	100	1.20	50
WLBD1005M1U600TB	60±25%	U	100	0.30	100
WLBD1005M1U121TB	120±25%	U	100	0.45	80
WLBD1005M1U221TB	220±25%	U	100	0.60	50
WLBD1005M1U301TB	300±25%	U	100	0.75	50

### Characteristic Curve



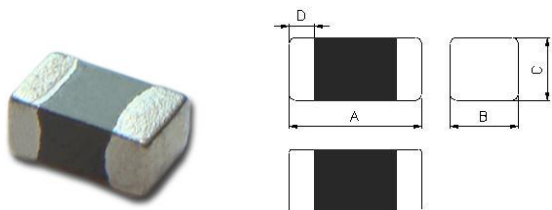
# Ferrite Chip Bead WLBD1608

## Ferrite Chip Bead WLBD1608 Series

### Mechanical Dimensions

(Unit: mm)

WLBD1608

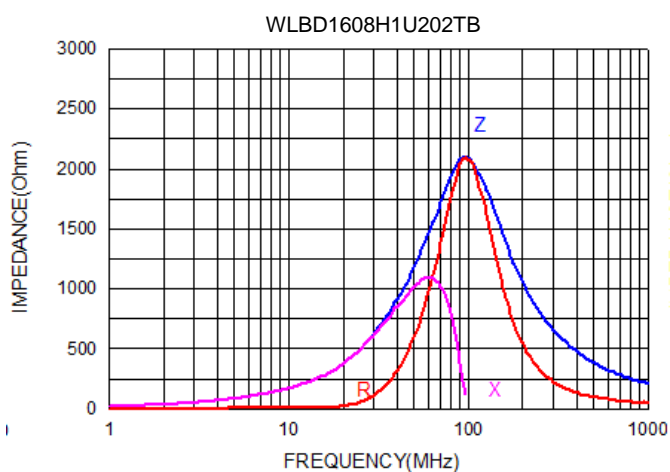
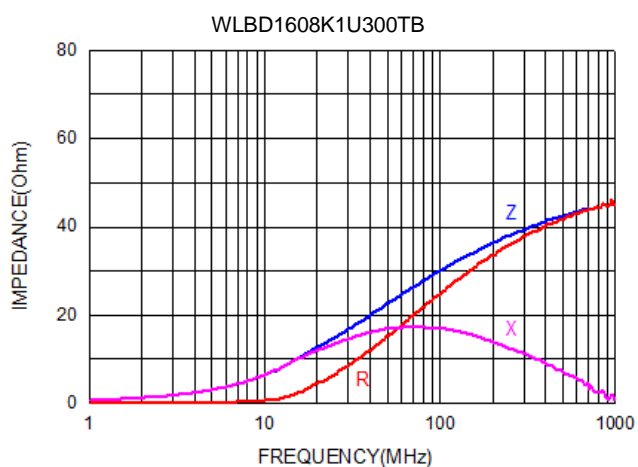


WLBD Series	A	B	C	D
WLBD1608 (EIA 0603)	1.60±0.15 mm	0.80±0.15 mm	0.80±0.15 mm	0.30±0.20 mm

### Electrical Specification

Walsin Part Number	Impedance (Ω)	Tolerance	Test Frequency (MHz)	DC Resistance (Ω) max.	Rated Current (mA) max.
WLBD1608K1U300TB	30±25%	U	100	0.20	700
WLBD1608K1U600TB	60±25%	U	100	0.20	700
WLBD1608K1U121TB	120±25%	U	100	0.25	600
WLBD1608K1U151TB	150±25%	U	100	0.25	600
WLBD1608K1U221TB	220±25%	U	100	0.30	550
WLBD1608K1U301TB	300±25%	U	100	0.35	500
WLBD1608K1U471TB	470±25%	U	100	0.45	350
WLBD1608K1U601TB	600±25%	U	100	0.50	350
WLBD1608K1U102TB	1000±25%	U	100	0.70	200
WLBD1608H1U152TB	1500±25%	U	100	1.00	200
WLBD1608H1U202TB	2000±25%	U	100	1.20	150

### Characteristic Curve

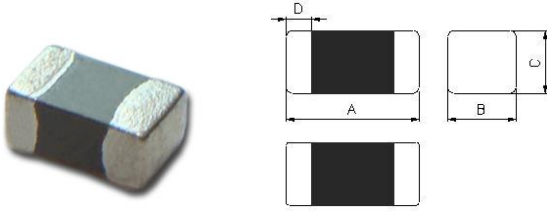


## Ferrite Chip Bead WLBD2012 Series

### Mechanical Dimensions

(Unit: mm)

WLBD2012



WLBD Series	A	B	Thickness C	D
WLBD2012 (EIA 0805)	2.00±0.20 mm	1.20±0.20 mm	0.85±0.20 1.25±0.20 mm	0.50±0.30 mm

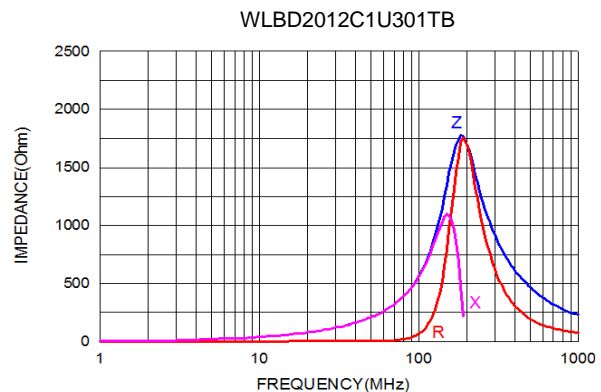
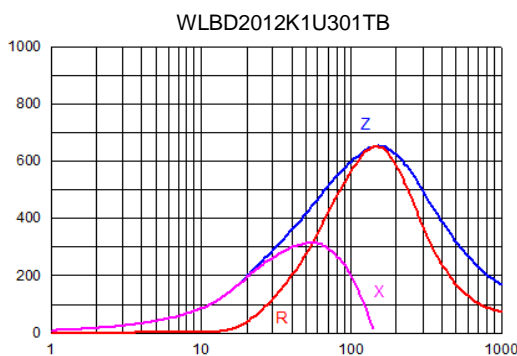
### Electrical Specification

Walsin Part Number	Thickness C size (mm)	Impedance (Ω)	Tolerance	Test Frequency (MHz)	DC Resistance (Ω) max	Rated Current (mA) max..
WLBD2012K1U110TB	0.85±0.2	11±25%	U	100	0.10	900
WLBD2012K1U170TB	0.85±0.2	17±25%	U	100	0.10	600
WLBD2012K1U260TB	0.85±0.2	26±25%	U	100	0.10	600
WLBD2012K1U300TB	0.85±0.2	30±25%	U	100	0.10	600
WLBD2012K1U400TB	0.85±0.2	40±25%	U	100	0.10	600
WLBD2012K1U600TB	0.85±0.2	60±25%	U	100	0.10	900
WLBD2012K1U121TB	0.85±0.2	120±25%	U	100	0.20	800
WLBD2012K1U151TB	0.85±0.2	150±25%	U	100	0.20	800
WLBD2012K1U221TB	0.85±0.2	220±25%	U	100	0.30	750
WLBD2012K1U301TB	0.85±0.2	300±25%	U	100	0.30	700
WLBD2012K1U471TB	0.85±0.2	470±25%	U	100	0.35	700
WLBD2012K1U601TB	0.85±0.2	600±25%	U	100	0.40	500
WLBD2012K1U102TB	0.85±0.2	1000±25%	U	100	0.45	400
WLBD2012H1U152TB	0.85±0.2	1500±25%	U	100	0.50	350
WLBD2012H1U202TB	0.85±0.2	2000±25%	U	100	0.60	250
WLBD2012N1U070TB	0.85±0.2	7±25%	U	100	0.10	600
WLBD2012C1U300TB	0.85±0.2	30±25%	U	100	0.20	700
WLBD2012C1U600TB	0.85±0.2	60±25%	U	100	0.20	700
WLBD2012C1U121TB	0.85±0.2	120±25%	U	100	0.25	600
WLBD2012C1U151TB	0.85±0.2	150±25%	U	100	0.25	600
WLBD2012C1U221TB	0.85±0.2	220±25%	U	100	0.30	400
WLBD2012C1U301TB	0.85±0.2	300±25%	U	100	0.35	400
WLBD2012C1U471PB	1.25±0.2	470±25%	U	100	0.40	400
WLBD2012C1U601PB	1.25±0.2	600±25%	U	100	0.45	300
WLBD2012C1U102PB	1.25±0.2	1000±25%	U	100	0.50	200

NOTE1 :TOLERANCE U=±25%

NOTE2 :Thickness C size (mm) - 0.85mm, 4k pcs / reel ; 1.25mm, 2k pcs / reel

### Characteristic Curve



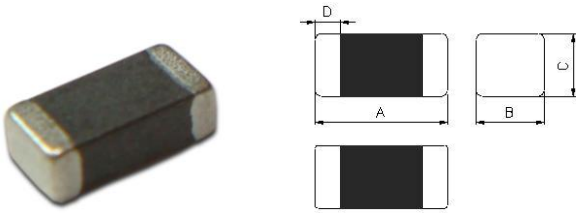
# Ferrite Chip Bead WLBD3216

## Ferrite Chip Bead WLBD3216 Series

### Mechanical Dimensions

(Unit: mm)

WLBD3216

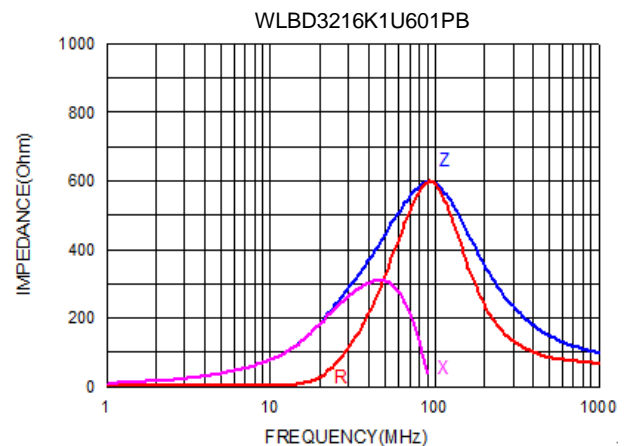
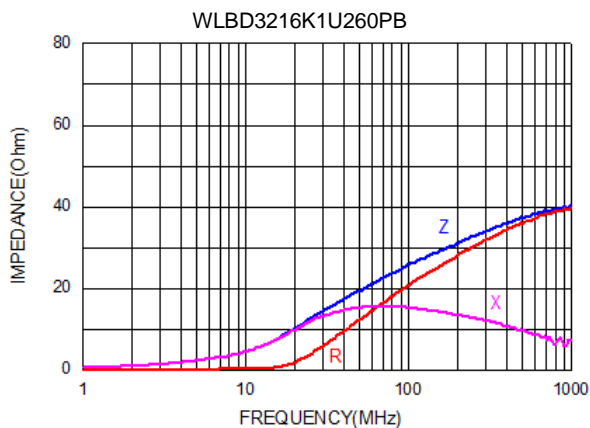


WLBD Series	A	B	C	D
WLBD3216 (EIA 1206)	3.20±0.20 mm	1.60±0.20 mm	1.10±0.20 mm	0.50±0.30 mm

### Electrical Specification

Walsin Part Number	Impedance (Ω)	Tolerance	Test Frequency (MHz)	DC Resistance (Ω) max.	Rated Current (mA) max.
WLBD3216K1U260PB	26±25%	U	100	0.20	500
WLBD3216K1U310PB	31±25%	U	100	0.20	500
WLBD3216K1U420PB	42±25%	U	100	0.20	500
WLBD3216K1U500PB	50±25%	U	100	0.20	500
WLBD3216K1U700PB	70±25%	U	100	0.20	500
WLBD3216K1U900PB	90±25%	U	100	0.20	500
WLBD3216K1U121PB	120±25%	U	100	0.15	900
WLBD3216K1U151PB	150±25%	U	100	0.15	900
WLBD3216K1U201PB	200±25%	U	100	0.35	600
WLBD3216K1U221PB	220±25%	U	100	0.35	700
WLBD3216K1U301PB	300±25%	U	100	0.35	700
WLBD3216K1U471PB	470±25%	U	100	0.35	400
WLBD3216K1U601PB	600±25%	U	100	0.40	400

### Characteristic Curve

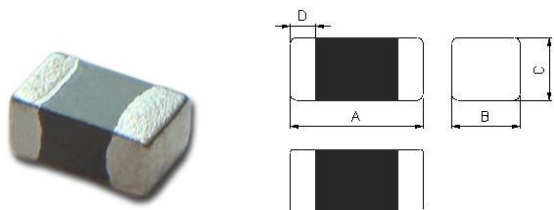


## Ferrite Chip Bead WLBD1005HC Series

### Mechanical Dimensions

(Unit: mm)

WLBD1005HC

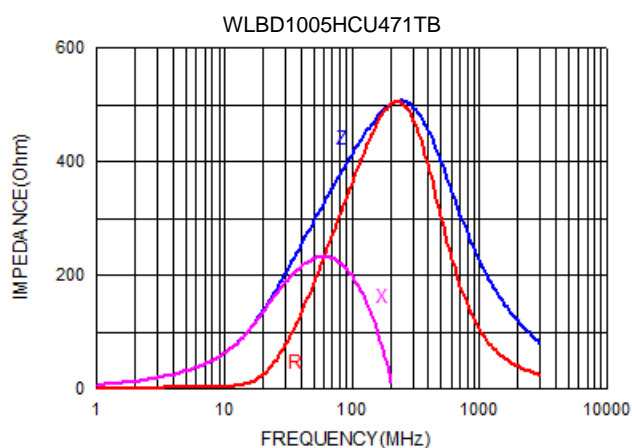
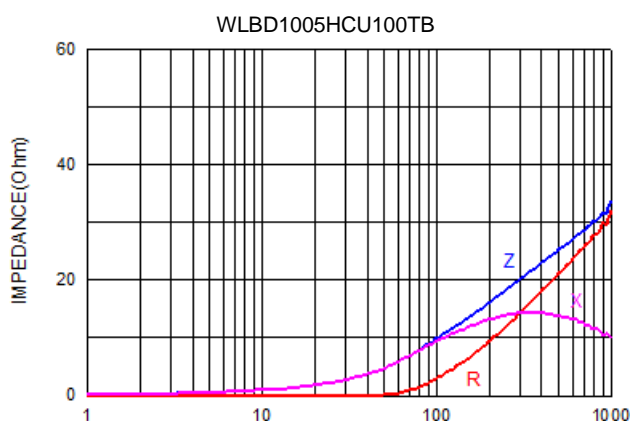


WLBD Series	A	B	C	D
WLBD1005HC (EIA 0402)	1.00±0.10 mm	0.50±0.10 mm	0.50±0.10 mm	0.25±0.10 mm

### Electrical Specification

Walsin Part Number	Impedance (Ω)	Tolerance	Test Frequency (MHz)	DC Resistance (Ω) max.	Rated Current (mA) max.
WLBD1005HCU100TB	10±25%	U	100	0.05	2500
WLBD1005HCU330TB	33±25%	U	100	0.022	3000
WLBD1005HCU600TB	60±25%	U	100	0.032	2500
WLBD1005HCU800TB	80±25%	U	100	0.038	2300
WLBD1005HCU121TB	120±25%	U	100	0.055	2000
WLBD1005HCU181TB	180±25%	U	100	0.09	1500
WLBD1005HCU221TB	220±25%	U	100	0.10	1400
WLBD1005HCU331TB	330±25%	U	100	0.15	1200
WLBD1005HCU471TB	470±25%	U	100	0.20	1000

### Characteristic Curve





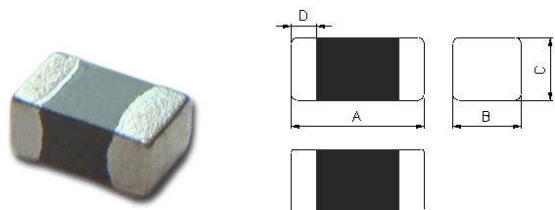
# Ferrite Chip Bead WLBD1608HC

## Ferrite Chip Bead WLBD1608HC Series

### Mechanical Dimensions

(Unit: mm)

WLBD1608HC

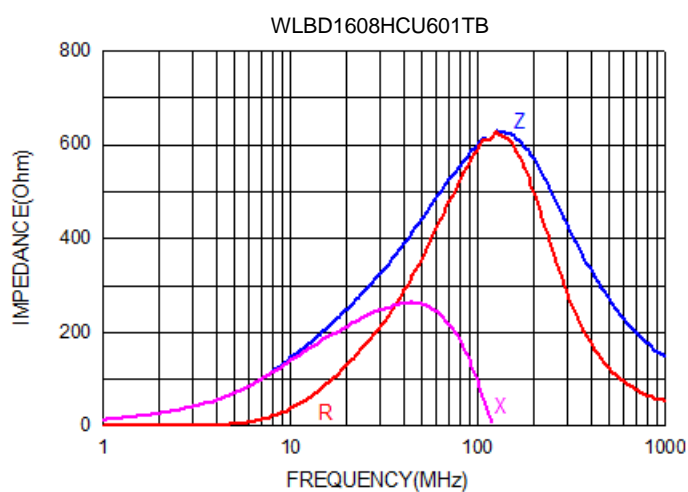
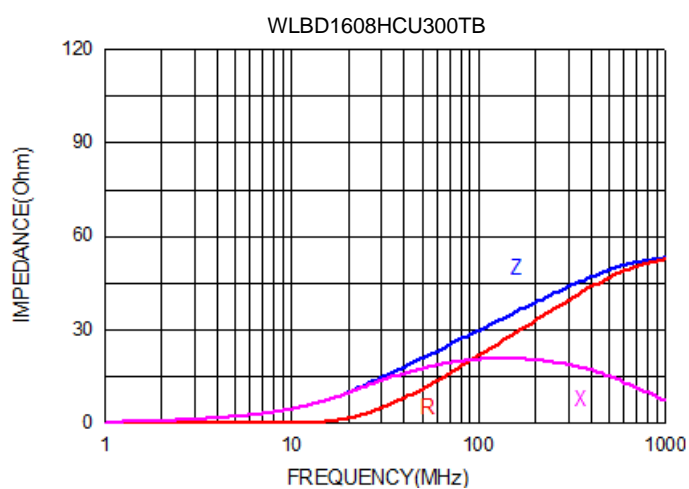


WLBD Series	A	B	C	D
WLBD1608HC (EIA 0603)	1.60±0.15 mm	0.80±0.15 mm	0.80±0.15 mm	0.30±0.20 mm

### Electrical Specification

Walsin Part Number	Impedance (Ω)	Tolerance	Test Frequency (MHz)	DC Resistance (Ω) max.	Rated Current (mA) max.
WLBD1608HCU300TB	30±25%	U	100	0.04	3000
WLBD1608HCU800TB	80±25%	U	100	0.04	3000
WLBD1608HCU121TB	120±25%	U	100	0.10	2000
WLBD1608HCU151TB	150±25%	U	100	0.10	2000
WLBD1608HCU221TB	220±25%	U	100	0.10	2000
WLBD1608HCU301TB	300±25%	U	100	0.20	1000
WLBD1608HCU471TB	470±25%	U	100	0.20	1000
WLBD1608HCU601TB	600±25%	U	100	0.20	1000

### Characteristic Curve

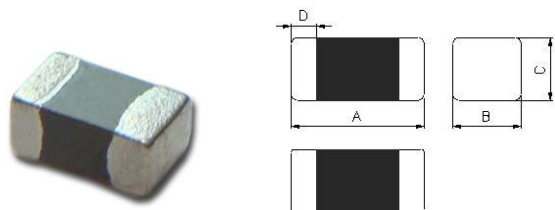


## Ferrite Chip Bead WLBD2012HC Series

### Mechanical Dimensions

(Unit: mm)

WLBD2012HC

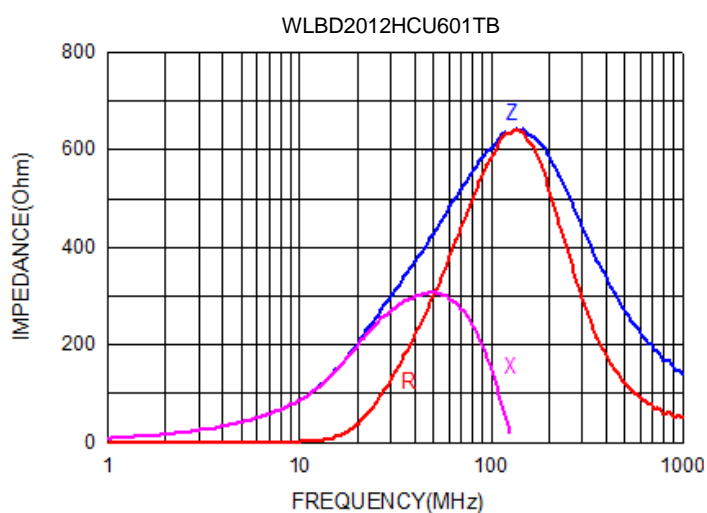
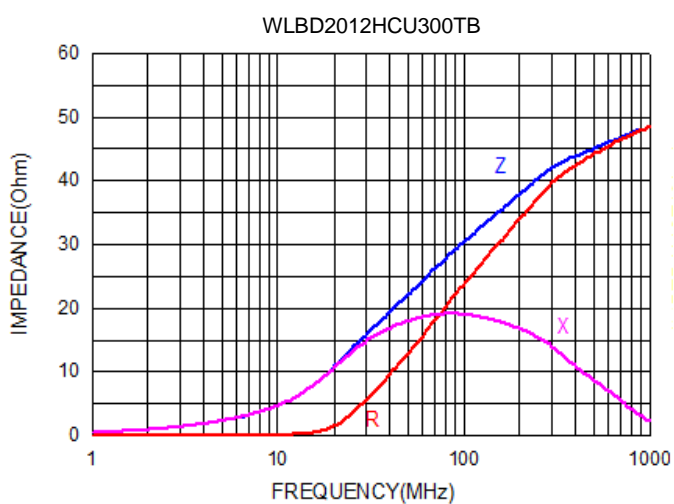


WLBD Series	A	B	C	D
WLBD2012HC (EIA 0805)	2.00±0.20 mm	1.20±0.20 mm	0.80±0.20 mm	0.50±0.30 mm

### Electrical Specification

Walsin Part Number	Impedance (Ω)	Tolerance	Test Frequency (MHz)	DC Resistance (Ω) max.	Rated Current (mA) max.
WLBD2012HCU300TB	30±25%	U	100	0.04	3000
WLBD2012HCU800TB	80±25%	U	100	0.04	3000
WLBD2012HCU121TB	120±25%	U	100	0.10	2000
WLBD2012HCU151TB	150±25%	U	100	0.10	2000
WLBD2012HCU221TB	220±25%	U	100	0.10	2000
WLBD2012HCU301TB	300±25%	U	100	0.20	1000
WLBD2012HCU471TB	470±25%	U	100	0.20	1000
WLBD2012HCU601TB	600±25%	U	100	0.20	1000

### Characteristic Curve



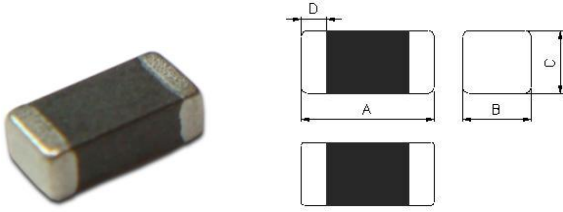
# Ferrite Chip Bead WLBD3216HC

## Ferrite Chip Bead WLBD3216HC Series

### Mechanical Dimensions

(Unit: mm)

WLBD3216HC

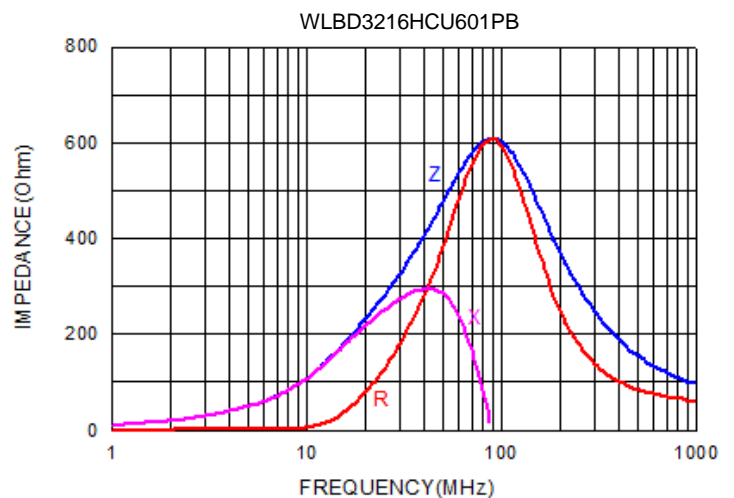
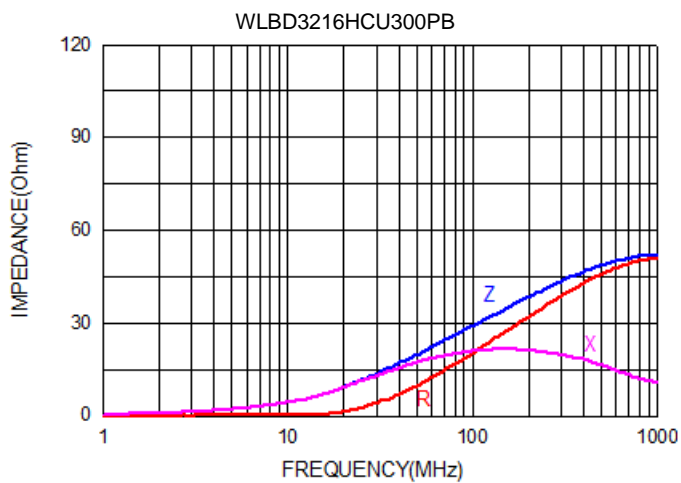


WLBD Series	A	B	C	D
WLBD3216HC (EIA1206)	3.20±0.20 mm	1.60±0.20 mm	0.80±0.20 mm	0.30±0.30 mm

### Electrical Specification

Walsin Part Number	Impedance (Ω)	Tolerance	Test Frequency (MHz)	DC Resistance (Ω) max.	Rated Current (mA) max.
WLBD3216HCU300PB	30±25%	U	100	0.04	3000
WLBD3216HCU500PB	50±25%	U	100	0.04	3000
WLBD3216HCU800PB	80±25%	U	100	0.04	3000
WLBD3216HCU121PB	120±25%	U	100	0.10	2000
WLBD3216HCU151PB	150±25%	U	100	0.10	2000
WLBD3216HCU301PB	300±25%	U	100	0.20	1000
WLBD3216HCU471PB	470±25%	U	100	0.20	1000
WLBD3216HCU501PB	500±25%	U	100	0.04	3000
WLBD3216HCU601PB	600±25%	U	100	0.10	2000

### Characteristic Curve

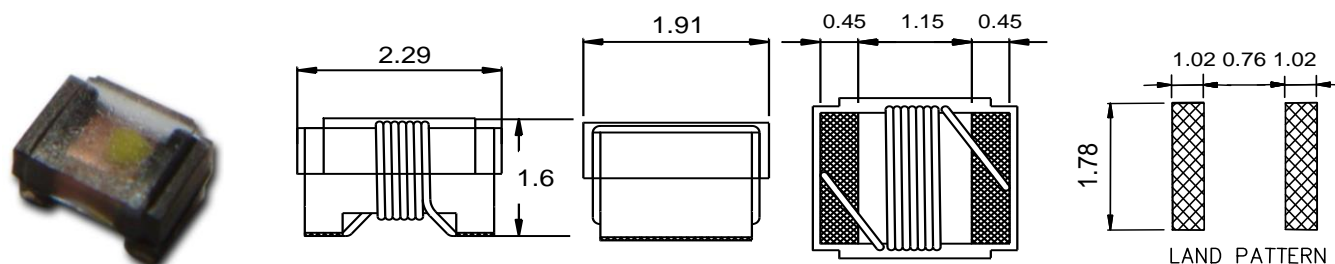


## Wire Wound Ferrite Chip Inductors WLFW2012 Series

### Mechanical Dimensions

(Unit: mm)

WLFW2012



### Electrical Specification

PART NO.	L(μH)	Test Freq. (MHz)	Inductance Tolerance	Q Min	SRF (MHz) Min	DCR (OHM) Max	I <sub>rms</sub> (mA)	COLOR CODE
WLFW2012Z0□78NPB	0.078	7.9	K、J	19	1440	0.042	2000	BLACK
WLFW2012Z0□R11PB	0.11	7.9	K、J	19	1400	0.05	2000	BROWN
WLFW2012Z0□R18PB	0.18	7.9	K、J	15	1000	0.15	500	GRAY
WLFW2012Z0□R22PB	0.22	7.9	K、J	15	1000	0.15	500	VIOLET
WLFW2012Z0□R33PB	0.33	7.9	K、J	15	862	0.25	300	WHITE
WLFW2012Z0□R39PB	0.39	7.9	K、J	15	800	0.30	500	BLACK
WLFW2012Z0□R47PB	0.47	7.9	K、J	19	500	0.31	720	RED
WLFW2012Z0□R56PB	0.56	7.9	K、J	12	800	1.20	300	RED
WLFW2012Z0□R68PB	0.68	7.9	K、J	20	400	0.46	590	ORANGE
WLFW2012Z0□R82PB	0.82	7.9	K、J	12	600	1.00	300	YELLOW
WLFW2012Z0□1R0PB	1.0	7.9	K、J	20	340	0.69	500	YELLOW
WLFW2012Z0□1R2PB	1.2	7.9	K、J	15	400	0.75	800	BLACK
WLFW2012Z0□1R5PB	1.5	7.9	K、J	20	275	0.83	490	GREEN
WLFW2012Z0□1R8PB	1.8	7.9	K、J	20	246	1.15	410	BLUE
WLFW2012Z0□2R2PB	2.2	7.9	K、J	20	106	1.28	365	VIOLET
WLFW2012Z0□2R7PB	2.7	7.9	K、J	20	105	1.48	350	GRAY
WLFW2012Z0□3R3PB	3.3	7.9	K、J	20	83	1.57	330	WHITE
WLFW2012Z0□3R9PB	3.9	7.9	K、J	20	52	1.70	300	BLACK
WLFW2012Z0□4R7PB	4.7	7.9	K、J	20	50	1.87	280	BROWN
WLFW2012Z0□5R6PB	5.6	7.9	K、J	20	90	2.00	340	BLUE
WLFW2012Z0□6R8PB	6.8	7.9	K、J	20	35	2.25	260	RED
WLFW2012Z0□8R2PB	8.2	2.5	K、J	18	27	2.55	250	ORANGE
WLFW2012Z0□100PB	10	2.5	K、J	18	21	3.45	200	YELLOW
WLFW2012Z0□120PB	12	2.5	K、J	18	37	3.80	220	BROWN
WLFW2012Z0□150PB	15	2.5	K、J	18	17	5.03	180	GREEN
WLFW2012Z0□180PB	18	2.5	K、J	18	23	4.48	180	ORANGE
WLFW2012Z0□220PB	22	2.5	K、J	18	13	6.18	150	BLUE
WLFW2012Z0□270PB	27	2.5	K、J	15	11	11.04	120	VIOLET

Tolerance : K : ±10%、J : ±5%

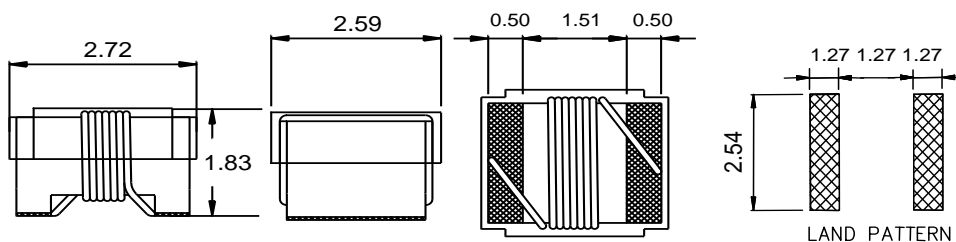
# Wire Wound Ferrite Chip Inductors WLFW2520

## Wire Wound Ferrite Chip Inductors WLFW2520 Series

### Mechanical Dimensions

(Unit: mm)

WLFW2520



### Electrical Specification

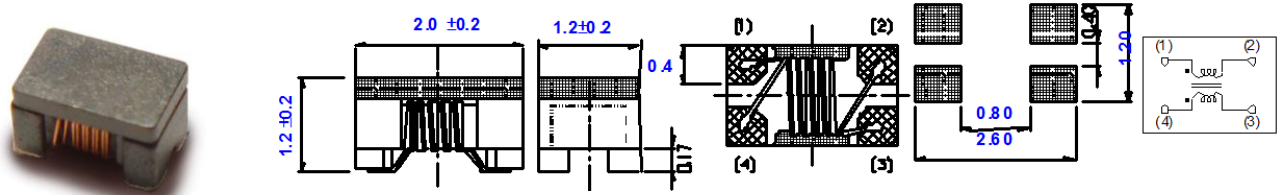
Part No	L ( $\mu$ H)	Test Freq. (MHz)	Inductance Tolerance	Q Min	Test Freq. (MHz)	SRF (MHz) Min	DCR (OHM) Max	I <sub>rms</sub> (mA)	COLOR CODE		
									1st	2nd	multiplier
WLFW2520Z0□47NPB	0.047	50	K、J	50	50	1800	0.045	650	Yellow	Violet	Black
WLFW2520Z0□68NPB	0.068	50	K、J	40	50	1800	0.045	650	Blue	Gray	Black
WLFW2520Z0□R10PB	0.10	50	K、J	50	50	1800	0.196	700	Brown	Black	Brown
WLFW2520Z0□R18PB	0.18	50	K、J	50	50	1000	0.290	700	Brown	Gray	Brown
WLFW2520Z0□R20PB	0.20	50	K、J	50	50	900	0.285	700	Red	Black	Brown
WLFW2520Z0□R24PB	0.24	50	K、J	50	50	900	0.135	700	Red	Yellow	Brown
WLFW2520Z0□R56PB	0.56	7.9	K、J	40	50	460	0.300	700	Green	Blue	Brown
WLFW2520Z0□R68PB	0.68	7.9	K、J	27	50	400	0.320	700	Blue	Gray	Brown
WLFW2520Z0□1R0PB	1.0	50	K、J	50	50	380	0.620	650	Brown	Black	Red
WLFW2520Z0□1R2PB	1.2	7.9	K、J	48	50	210	0.68	650	Brown	Red	Red
WLFW2520Z0□1R5PB	1.5	7.9	K、J	41	50	190	0.76	630	Brown	Green	Red
WLFW2520Z0□1R8PB	1.8	7.9	K、J	39	50	170	0.84	600	Brown	Gray	Red
WLFW2520Z0□2R2PB	2.2	7.9	K、J	34	50	150	1.10	520	Red	Red	Red
WLFW2520Z0□2R7PB	2.7	7.9	K、J	34	50	135	1.28	490	Red	Violet	Red
WLFW2520Z0□3R3PB	3.3	7.9	K、J	32	50	120	1.46	450	Orange	Orange	Red
WLFW2520Z0□3R9PB	3.9	7.9	K、J	32	7.9	105	1.56	420	Orange	White	Red
WLFW2520Z0□4R3PB	4.3	7.9	K、J	30	7.9	85	1.70	400	Yellow	Orange	Red
WLFW2520Z0□4R7PB	4.7	7.9	K、J	31	7.9	90	1.68	400	Yellow	Violet	Red
WLFW2520Z0□5R6PB	5.6	7.9	K、J	31	7.9	80	1.82	380	Green	Blue	Red
WLFW2520Z0□6R8PB	6.8	7.9	K、J	31	7.9	70	2.00	360	Blue	Gray	Red
WLFW2520Z0□8R2PB	8.2	7.9	K、J	23	7.9	65	2.65	330	Gray	Red	Red
WLFW2520Z0□100PB	10.0	7.9	K、J	31	7.9	60	2.95	300	Brown	Black	Orange
WLFW2520Z0□120PB	12.0	7.9	K、J	30	7.9	50	3.35	270	Brown	Red	Orange
WLFW2520Z0□150PB	15.0	7.9	K、J	38	7.9	50	3.04	250	Brown	Green	Orange
WLFW2520Z0□220PB	22.0	2.52	K、J	10	2.52	10	2.80	120	Red	Red	Orange

## Common Mode Choke WTCF2012 Series

### Mechanical Dimensions

(Unit: mm)

WTCF2012



### Electrical Specification

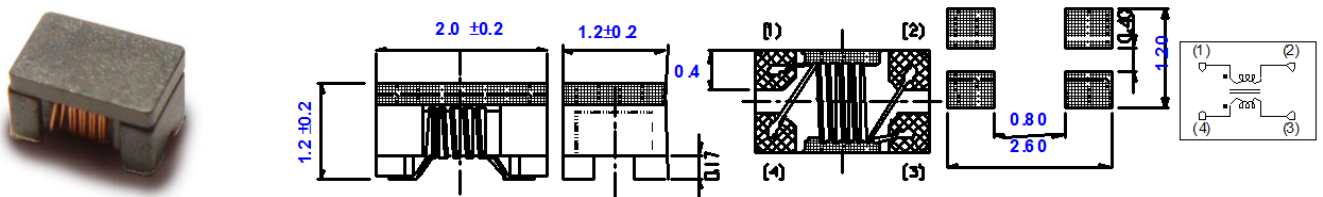
Part Number	Z (OHM) @ 100MHz ±20 %	DCR (OHM) MAX.	RATE CURRENT (mA)	Cut-off Frequency (GHz) typ.	Rated Voltage (Vdc)	Withstand Voltage (Vdc)	Insulation Resistance @ 125VDC (MOHM) min.
WTCF2012Z0M670PB	67	0.25	400	1.0	50	125	10
WTCF2012Z0M750PB	75	0.30	400				
WTCF2012Z0M900PB	90	0.35	330				
WTCF2012Z0M101PB	100	0.35	330				
WTCF2012Z0M121PB	120	0.30	370				
WTCF2012Z0M181PB	180	0.35	330				
WTCF2012Z0M261PB	260	0.40	300				
WTCF2012Z0M361PB	360	0.50	300				
WTCF2012Z0M371PB	370	0.45	280				

## Common Mode Choke WTCF2012FH Series

### Mechanical Dimensions

(Unit: mm)

WTCF2012FH



### Electrical Specification

Part Number	Z (OHM) @ 100MHz ±20 %	DCR (OHM) MAX.	RATE CURRENT (mA)	Rated Voltage Vdc(V)	Cut-off Frequency (GHz) typ.	Isulation Resistance (MΩ)MIN.
WTCF2012FHM670PB	67	0.25	400	50	6GHz	10
WTCF2012FHM900PB	90	0.30	370	50	6GHz	10
WTCF2012FHM121PB	120	0.35	330	50	6GHz	10

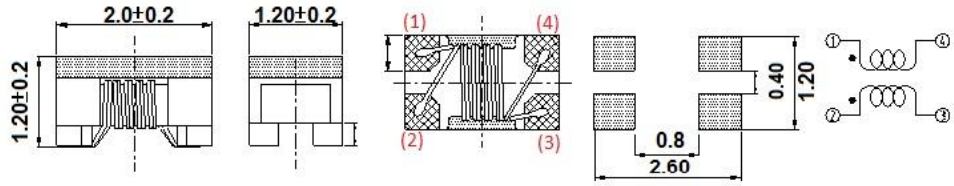


## Balun Transformer WTBL2012 Series

### Mechanical Dimensions

(Unit: mm)

WTBL2012



### Electrical Specification

Part Number	UB/B Impedance (ohm)	Insulation (m OHM) Min.	Withstand Voltage (DCV)	DCR (OHM) MAX.	Rated Voltage (DCV)	Rated Current (mA)	Frequency Range	Insertion Loss at Freq. Range (max.)
WTBL2012Z0U001PB	50/50	10	125	0.35	50	330	40MHz To 0.86GHz	2.5
WTBL2012Z0U002PB	75/75	10	125	0.35	50	330	50MHz To 1.2GHz	1.2
WTBL2012Z0U003PB	75/75	10	125	0.35	50	330	1.0GHz To 1.5GHz	1.4
WTBL2012Z0U004PB	75/75	10	125	0.35	50	330	50MHz To 1.2GHz	1.2
WTBL2012Z0U005PB	50/50	10	125	0.35	50	330	400MHz To 1.8GHz	2.2
WTBL2012Z0U006PB	75/75	10	125	0.50	50	330	400MHz To 1.8GHz	2.0
WTBL2012Z0U007PB	75/75	10	125	0.50	50	330	50MHz To 1.2GHz	1.2
WTBL2012Z0U008PB	75/75	10	125	0.35	50	330	400MHz To 1.5GHz	1.4
WTBL2012Z0U009PB	75/75	10	125	0.50	50	330	50MHz To 2.35GHz	2.0
WTBL2012Z0U010PB	75/75	10	125	0.50	50	330	750MHz To 3.0GHz	2.0

Insertion Loss Tested by AgilentE5071C

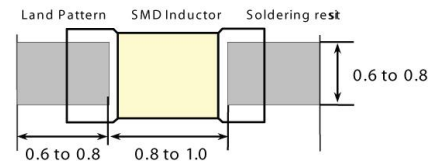
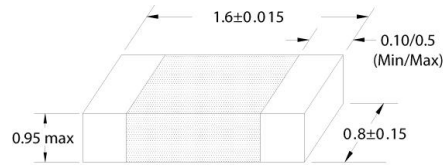
DCR Tested by Zentech502BC

### Multi-Layer Power Inductors WLFM1608 Series

#### Mechanical Dimensions

(Unit: mm)

WLFM1608



Recommend Pattern

#### Electrical Specification

WLFM1608 (EIA 0603)

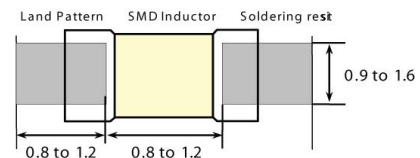
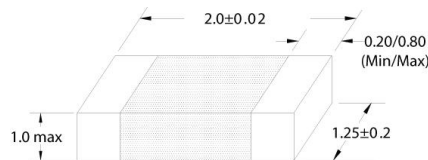
Ordering Code	Inductance [uH]	Inductance Tolerance	Measuring frequency [MHz]	DC Resistance [Ω]	Rated Current [A] (max.)	Saturation Current [A] (max.)	Thickness [mm]
WLFM1608Z0□R33TB	0.33	M	1	0.27±25%	0.35	1.10	0.80±0.15
WLFM1608Z0□R50TB	0.50			0.12±25%	0.90	0.80	
WLFM1608Z0□1R0TB	1.00			0.17±25%	0.75	0.50	
WLFM1608Z0□2R2TB	2.20			0.27±25%	0.65	0.25	

### Multi-Layer Power Inductors WLFM2012 Series

#### Mechanical Dimensions

(Unit: mm)

WLFM2012



Recommend Pattern

#### Electrical Specification

WLFM2012 (EIA 0805)

Ordering Code	Inductance [uH]	Inductance Tolerance	Measuring frequency [MHz]	DC Resistance [Ω]	Rated Current [A] (max.)	Saturation Current [A] (max.)	Thickness [mm]
WLFM2012Z0□R47PB	0.47	M	1	0.09±25%	1.20	1.20	0.90±0.10
WLFM2012Z0□1R0PB	1.00			0.11±25%	1.00	1.10	
WLFM2012Z0□1R5PB	1.50			0.13±25%	0.95	0.90	
WLFM2012Z0□2R2PB	2.20			0.17±25%	0.95	0.55	
WLFM2012Z0□3R3PB	3.30			0.19±25%	0.80	0.30	
WLFM2012Z0□4R7PB	4.70			0.23±25%	0.80	0.18	

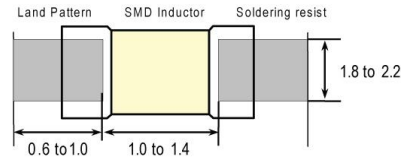
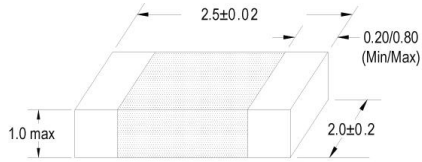
# Multi-Layer Power Inductors WLFM1608, WLFM2012, WLFM2520 Series

## Multi-Layer Power Inductors WLFM2520 Series

### Mechanical Dimensions

(Unit: mm)

WLFM2520



Recommend Pattern

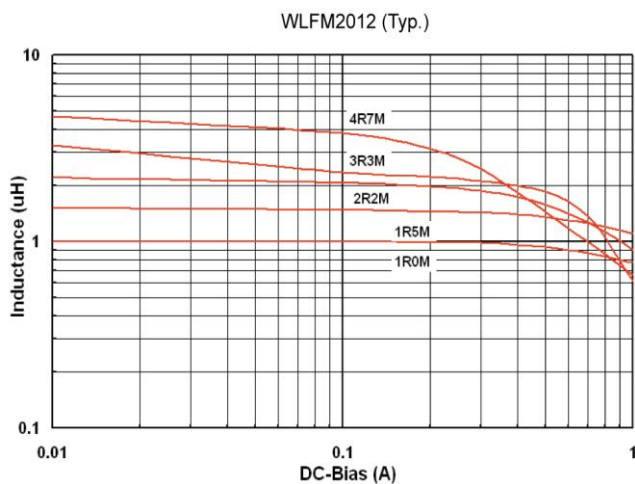
### Electrical Specification

#### WLFM2520 (EIA 1008)

Ordering Code	Inductance [uH]	Inductance Tolerance	Measuring frequency [MHz]	DC Resistance [Ω]	Rated Current [A] (max.)	Saturation Current [A] (max.)	Thickness [mm]
WLFM2520Z0MR47PB	0.47	M	1	0.04±25%	1.80	1.28	1.0 max
WLFM2520Z0M1R0PB	1.0			0.06±25%	1.60	0.96	
WLFM2520Z0M1R5PB	1.5			0.06±25%	1.50	0.64	
WLFM2520Z0M2R2PB	2.2			0.09±25%	1.30	0.56	
WLFM2520Z0M3R3PB	3.3			0.09±25%	1.20	0.24	
WLFM2520Z0M4R7PB	4.7			0.13±25%	1.10	0.24	

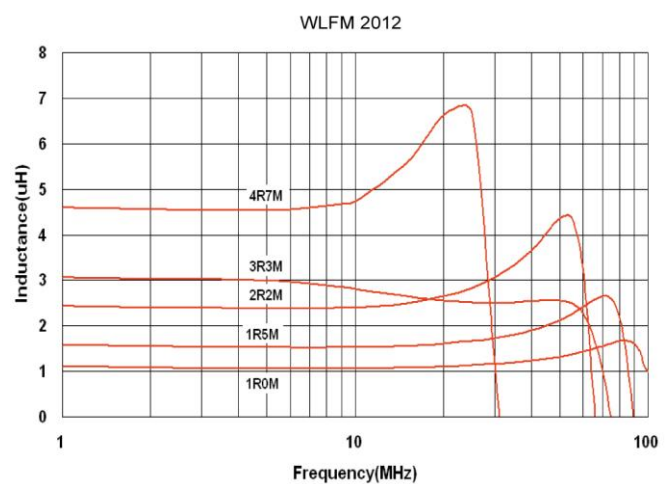
### Characteristic Curve

#### (DC Bias characteristics)



### Characteristic Curve

#### (Inductance vs. Frequency)

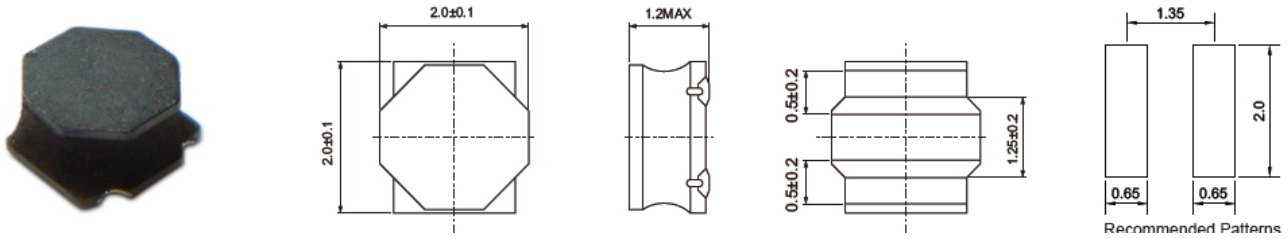


## SMD Wire Wound Power Inductors WLPN202012 Series (SHIELDED)

### Mechanical Dimensions

(Unit: mm)

WLPN202012

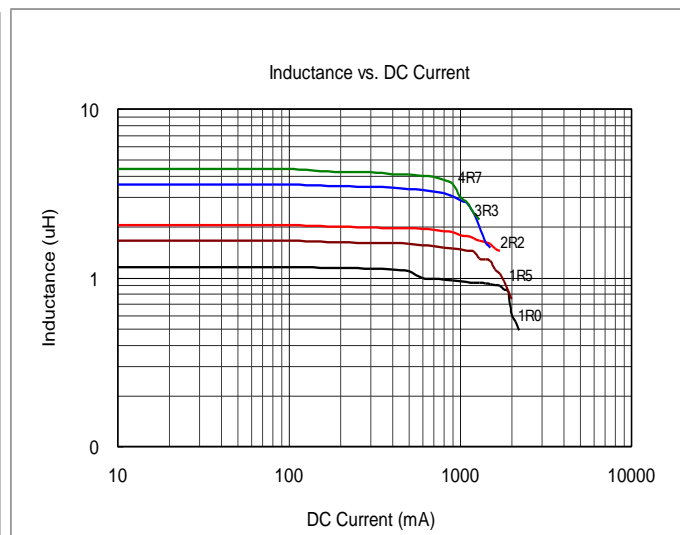
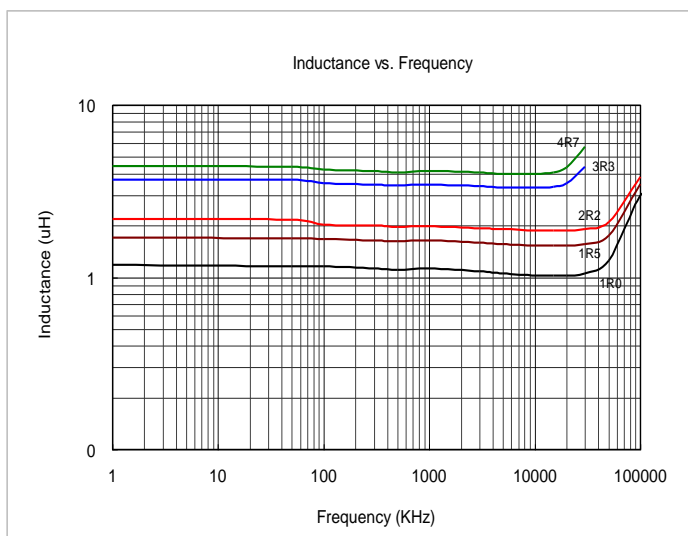


### Electrical Specification

Part Number	Inductance @100KHz (uH)	Inductance Tolerance	DCR ±20% (Ω)	Rated Current (mA)			
				Saturation Current Idc1 (Typ.)	Temperature Rise Current Idc2 (Typ.)	Saturation Current Idc1 (Max.)	Temperature Rise Current Idc2 (Max.)
WLPN202012N1R0PB	1.0	±30%	0.070	2050	1850	1900	1700
WLPN202012N1R5PB	1.5	±30%	0.090	1800	1650	1650	1500
WLPN202012M2R2PB	2.2	±20%	0.107	1500	1500	1350	1370
WLPN202012M3R3PB	3.3	±20%	0.190	1150	1100	1000	1020
WLPN202012M4R7PB	4.7	±20%	0.241	1050	1000	900	910

- Operating temperature Range : -25°C to +120°C (Including self-temperature rise)
- Storage Temp. Range : -40 °C to +85 °C.
- Inductance measured using the HP4285A and Chroma1320 & 3302
- DCR measured using Chroma16502.
- Saturation Current Idc1 : The value of current causes a 30% inductance reduction from initial value.( at Ta:20°C)
- Temperature rise current Idc2 : The value of current causes a 40 °C temperature rise.( at Ta:20°C)
- Rated Current : Either Idc1 or Idc2 whichever is smaller
- MSL : Level 1

### Characteristic Curve



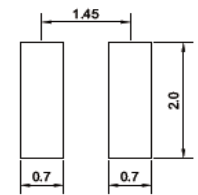
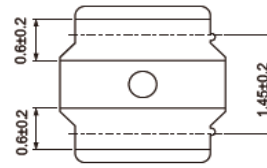
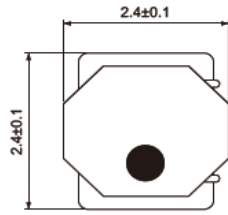
# SMD Wire Wound Power Inductors WLPN242410 Series (SHIELDED)

## SMD Wire Wound Power Inductors WLPN242410 Series (SHIELDED)

### Mechanical Dimensions

(Unit: mm)

WLPN242410



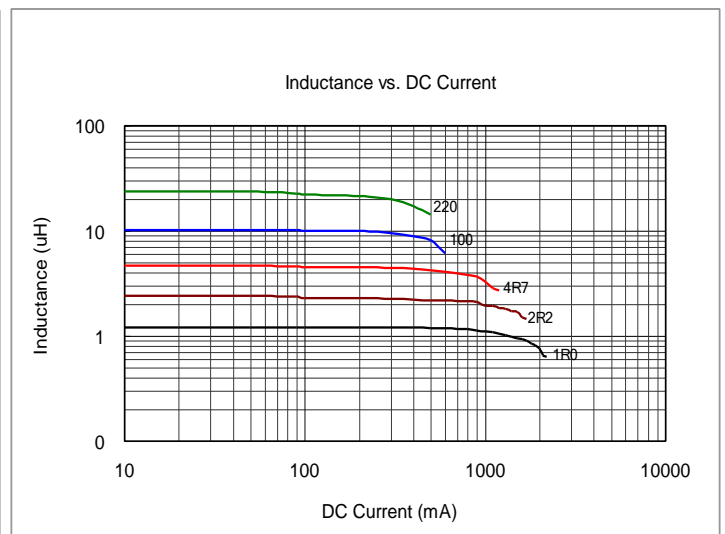
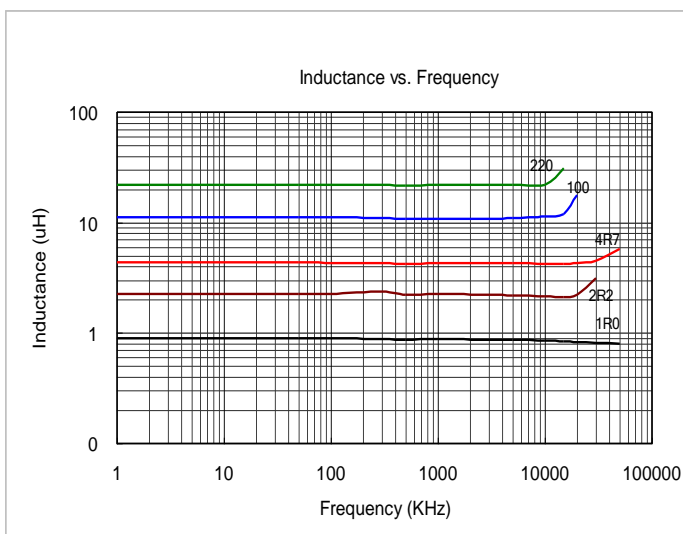
Recommended Patterns

### Electrical Specification

Part Number	Inductance @100KHz (uH)	Inductance Tolerance	DCR ±20% (Ω)	Rated Current (mA)		SRF (MHz) Min.
				Saturation Current Idc1	Temperature Rise Current Idc2	
WLPN242410NR68PB	0.68	±30%	0.06	2200	1570	120
WLPN242410N1R0PB	1.00	±30%	0.07	1800	1410	106
WLPN242410M1R5PB	1.50	±20%	0.11	1550	1160	94
WLPN242410M2R2PB	2.20	±20%	0.15	1290	970	77
WLPN242410M3R3PB	3.30	±20%	0.22	1000	770	56
WLPN242410M4R7PB	4.70	±20%	0.29	880	670	50
WLPN242410M6R8PB	6.80	±20%	0.41	750	570	43
WLPN242410M100PB	10.0	±20%	0.69	550	450	32
WLPN242410M150PB	15.0	±20%	1.02	470	370	27
WLPN242410M220PB	22.0	±20%	1.47	390	300	22

- Operating temperature Range : -25°C to +120°C (Including self-temperature rise)
- Storage Temp. Range : -40 °C to +85 °C.
- Inductance measured using the HP4285A and Chroma1320 & 3302
- DCR measured using Chroma16502.
- SRF measured using the HP4291B.
- Saturation Current Idc1 : The value of current causes a 30% inductance reduction from initial value.( at Ta:20°C)
- Temperature rise current Idc2 : The value of current causes a 40 °C temperature rise.( at Ta:20°C)
- Rated Current : Either Idc1 or Idc2 whichever is smaller.
- MSL : Level 1..

### Characteristic Curve

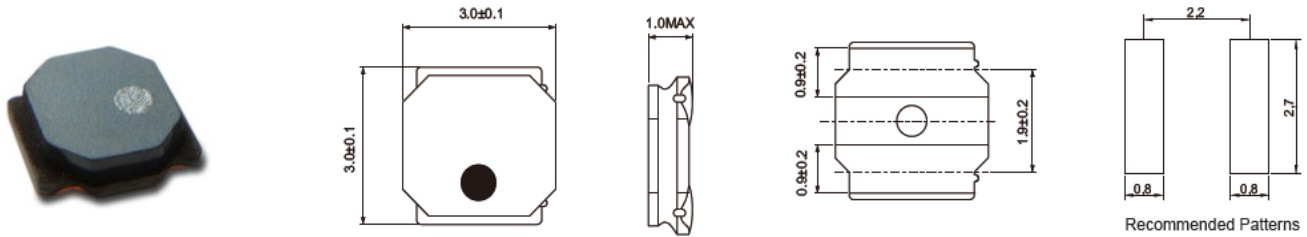


## SMD Wire Wound Power Inductors WLPN303010 Series (SHIELDED)

### Mechanical Dimensions

(Unit: mm)

WLPN303010

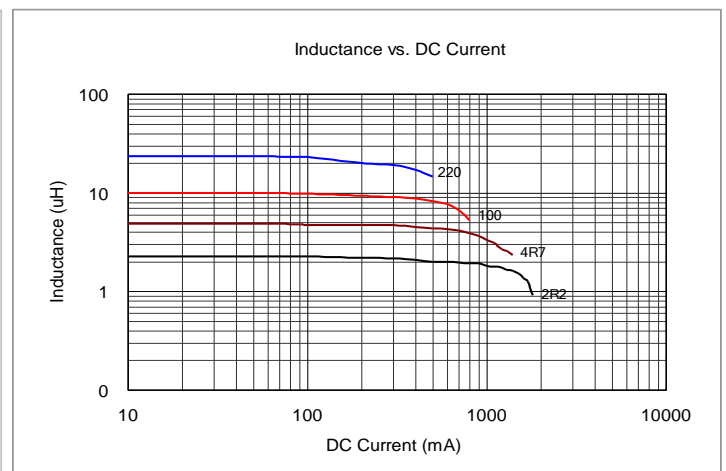
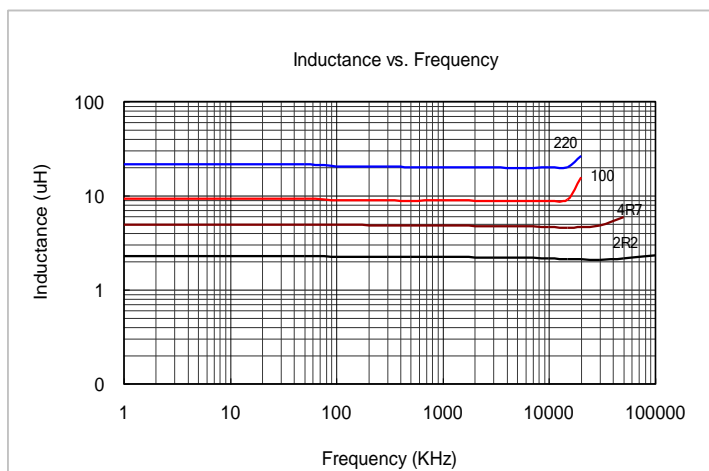


### Electrical Specification

Part Number	Inductance @ 100KHz (uH)	Inductance Tolerance	DCR ±20% (Ω)	Rated Current (mA)		SRF (MHz) Min.
				Saturation Current Idc1	Temperature Rise Current Idc2	
WLPN303010N1R2PB	1.20	±30%	0.065	1700	1480	120
WLPN303010N1R5PB	1.50	±30%	0.075	1440	1370	99
WLPN303010M2R2PB	2.20	±20%	0.083	1300	1300	86
WLPN303010M3R3PB	3.30	±20%	0.130	1000	1030	64
WLPN303010M4R7PB	4.70	±20%	0.170	850	900	50
WLPN303010M6R8PB	6.80	±20%	0.250	700	745	44
WLPN303010M100PB	10.0	±20%	0.350	600	620	34
WLPN303010M150PB	15.0	±20%	0.550	450	480	25
WLPN303010M220PB	22.0	±20%	0.770	380	410	22

- Operating temperature Range : -25°C to +120°C (Including self-temperature rise)
- Storage Temp. Range : -40 °C to +85 °C.
- Inductance measured using the HP4285A and Chroma1320 & 3302
- DCR measured using Chroma16502.
- SRF measured using the HP4291B.
- Saturation Current Idc1 : The value of current causes a 30% inductance reduction from initial value.( at Ta:20°C)
- Temperature rise current Idc2: The value of current causes a 40°C temperature rise.( at Ta:20°C)
- Rated Current : Either Idc1 or Idc2 whichever is smaller.
- MSL : Level 1

### Characteristic Curve





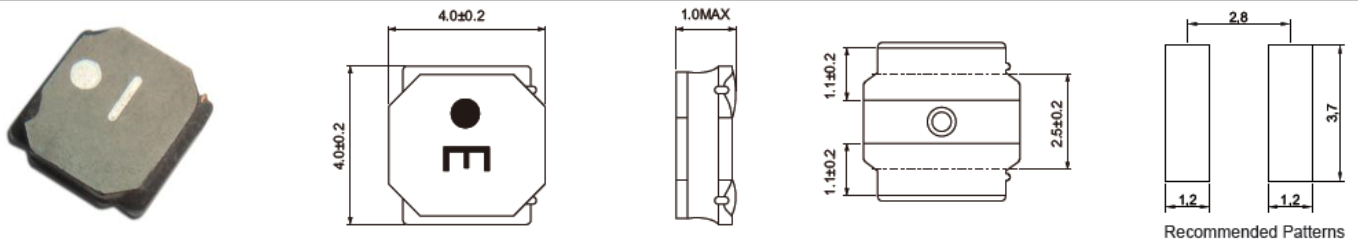
# SMD Wire Wound Power Inductors WLPN404010 Series (SHIELDED)

## SMD Wire Wound Power Inductors WLPN404010 Series (SHIELDED)

### Mechanical Dimensions

(Unit: mm)

WLPN404010

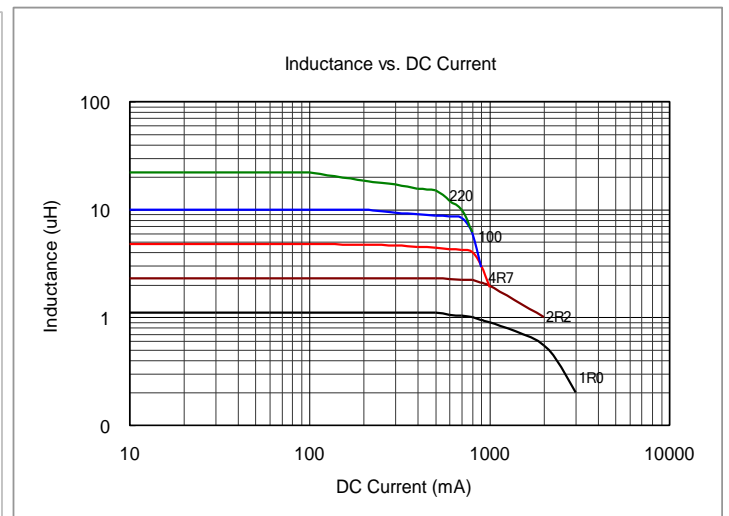
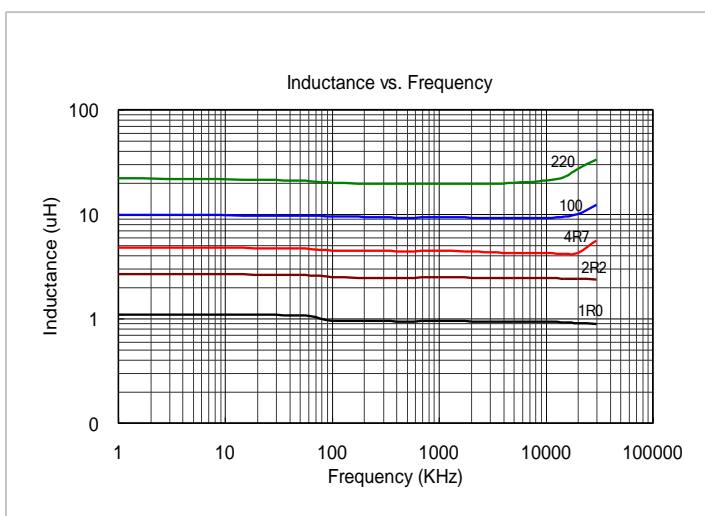


### Electrical Specification

Part Number	Marking	Inductance @ 100KHz ( $\mu$ H)	Inductance Tolerance	DCR $\pm 20\%$ ( $\Omega$ )	Rated Current (mA)		SRF (MHz) Min.
					Saturation Current Idc1	Temperature Rise Current Idc2	
WLPN404010N1R0LB	A	1.0	$\pm 30\%$	0.056	2000	1900	116
WLPN404010M2R2LB	C	2.2	$\pm 20\%$	0.085	1200	1500	73
WLPN404010M3R3LB	E	3.3	$\pm 20\%$	0.100	1100	1400	58
WLPN404010M4R7LB	H	4.7	$\pm 20\%$	0.140	950	1200	47
WLPN404010M6R8LB	I	6.8	$\pm 20\%$	0.200	800	1000	38
WLPN404010M100LB	K	10	$\pm 20\%$	0.300	620	750	31
WLPN404010M150LB	M	15	$\pm 20\%$	0.430	540	600	24
WLPN404010M220LB	N	22	$\pm 20\%$	0.570	450	500	19

- Operating temperature Range :  $-25^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  (Including self-temperature rise)
- Storage Temp. Range :  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ .
- Inductance measured using the HP4285A and Chroma1320 & 3302
- DCR measured using Chroma16502.
- SRF measured using the HP4291B.
- Saturation Current Idc1 : The value of current causes a 30% inductance reduction from initial value.( at  $T_a:20^{\circ}\text{C}$ )
- Temperature rise current Idc2 : The value of current causes a  $40^{\circ}\text{C}$  temperature rise.( at  $T_a:20^{\circ}\text{C}$ )
- Rated Current : Either Idc1 or Idc2 whichever is smaller.
- MSL : Level 1

### Characteristic Curve

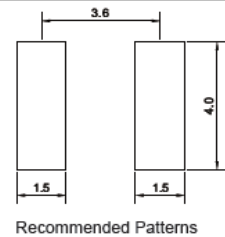
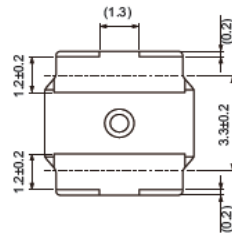
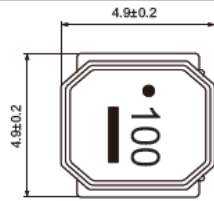


## SMD Wire Wound Power Inductors WLPN505010 Series (SHIELDED)

### Mechanical Dimensions

(Unit: mm)

WLPN505010

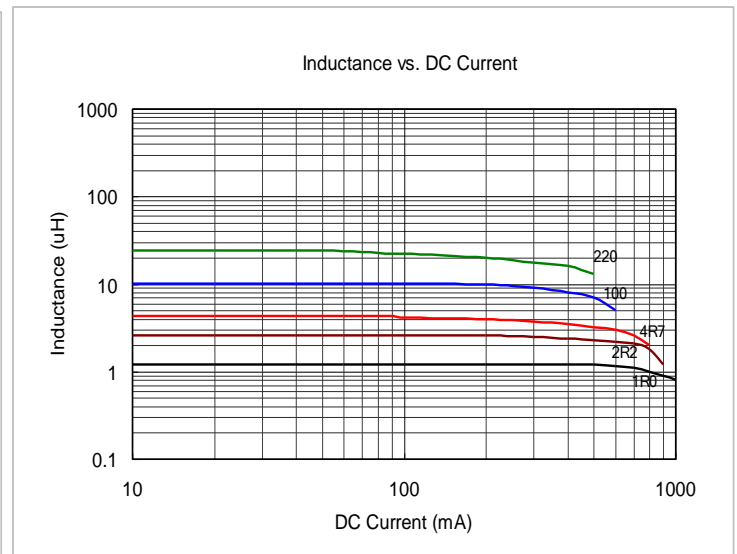
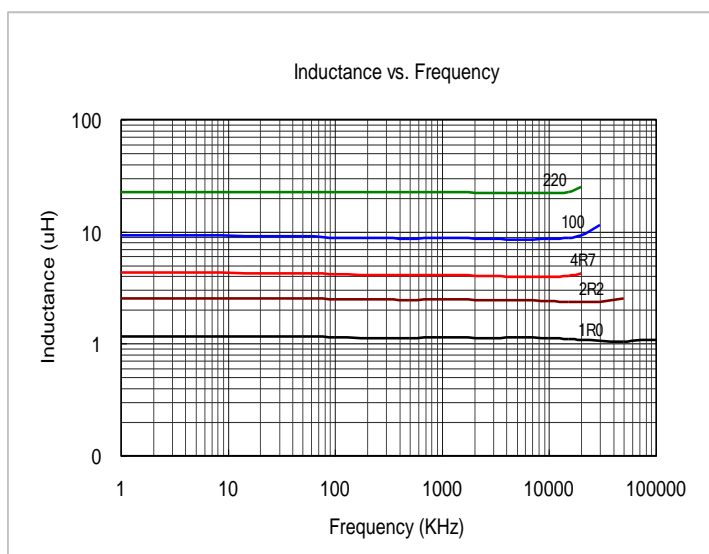


### Electrical Specification

Part Number	Marking	Inductance @100KHz (uH)	Inductance Tolerance	DCR ±20% (Ω)	Rated Current (mA)		SRF (MHz) Min.
					Saturation Current Idc1	Temperature Rise Current Idc2	
WLPN505010N1R0PB	1R0	1.0	±30%	0.070	2350	1750	95
WLPN505010N2R2PB	2R2	2.2	±30%	0.105	1500	1400	65
WLPN505010M3R3PB	3R3	3.3	±20%	0.125	1400	1250	42
WLPN505010M4R7PB	4R7	4.7	±20%	0.145	1200	1150	37
WLPN505010M6R8PB	6R8	6.8	±20%	0.185	1000	1000	33
WLPN505010M100PB	100	10	±20%	0.250	850	900	23
WLPN505010M150PB	150	15	±20%	0.400	680	650	19
WLPN505010M220PB	220	22	±20%	0.600	550	450	15

- Operating temperature Range : -25°C to +125°C (Including self-temperature rise)
- Storage Temp. Range : -40 °C to +85 °C.
- Inductance measured using the HP4285A and Chroma1320 & 3302
- DCR measured using Chroma16502.
- SRF measured using the HP4291B.
- Saturation Current Idc1 : The value of current causes a 30% inductance reduction from initial value. ( at Ta:20°C )
- Temperature rise current Idc2 : The value of current causes a 40°C temperature rise. ( at Ta:20°C )
- Rated Current : Either Idc1 or Idc2 whichever is smaller.
- MSL : Level 1

### Characteristic Curve



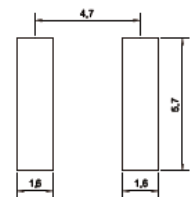
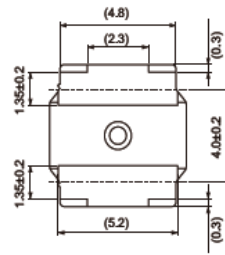
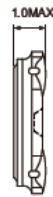
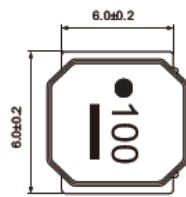
# SMD Wire Wound Power Inductors WLPN606010 Series (SHIELDED)

## SMD Wire Wound Power Inductors WLPN606010 Series (SHIELDED)

### Mechanical Dimensions

(Unit: mm)

WLPN606010



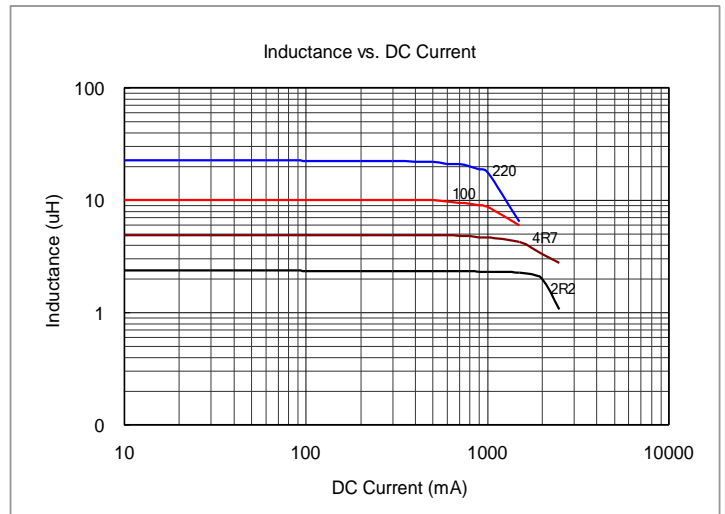
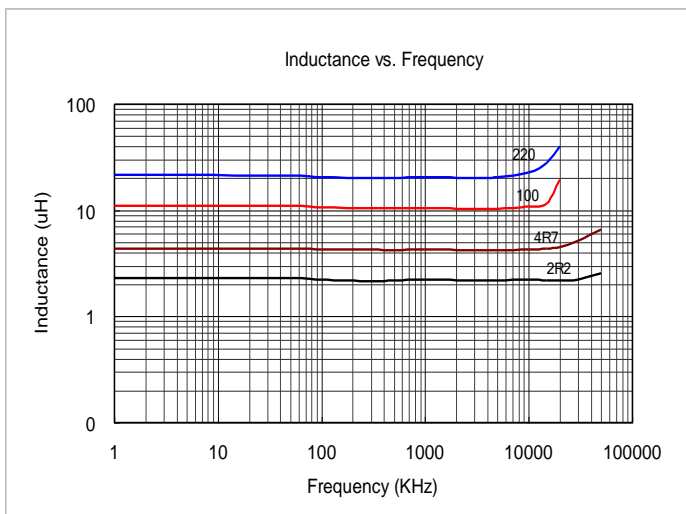
Recommended Patterns

### Electrical Specification

Part Number	Marking	Inductance @ 100KHz (uH)	Inductance Tolerance	DCR ±30% (Ω)	Rated Current (mA)		SRF (MHz) Min.
					Saturation Current Idc1	Temperature Rise Current Idc2	
WLPN606010M1R5PB	1R5	1.5	±20%	0.090	2400	1900	77
WLPN606010M2R2PB	2R2	2.2	±20%	0.110	1900	1700	56
WLPN606010M3R3PB	3R3	3.3	±20%	0.135	1600	1500	42
WLPN606010M4R7PB	4R7	4.7	±20%	0.165	1300	1400	36
WLPN606010M6R8PB	6R8	6.8	±20%	0.220	1200	1200	30
WLPN606010M100PB	100	10	±20%	0.270	1000	1100	25
WLPN606010M220PB	220	22	±20%	0.580	650	700	12

- Operating Temperature Range : -25°C to +125°C (Including self-temperature rise)
- Storage Temp. Range : -40 °C to +85 °C.
- Inductance measured using the HP4285A and Chroma1320 & 3302
- DCR measured using Chroma16502.
- SRF measured using the HP4291B.
- Saturation Current Idc1 : The value of current causes a 30% inductance reduction from initial value. ( at Ta:20°C )
- Temperature rise current Idc2 : The value of current causes a 40°C temperature rise. ( at Ta:20°C )
- Rated Current : Either Idc1 or Idc2 whichever is smaller.
- MSL : Level 1

### Characteristic Curve

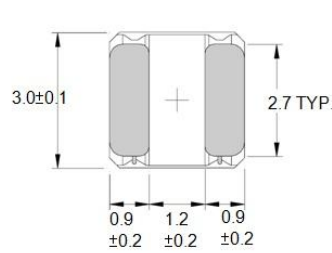
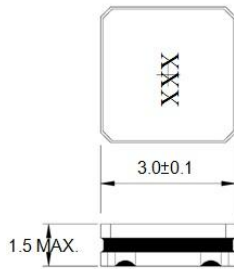


## SMD Wire Wound Power Inductors WLPN303015 Series (SHIELDED)

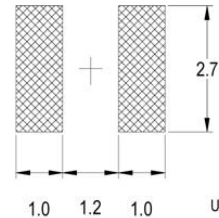
### Mechanical Dimensions

(Unit: mm)

WLPN303015



Recommended Land Pattern

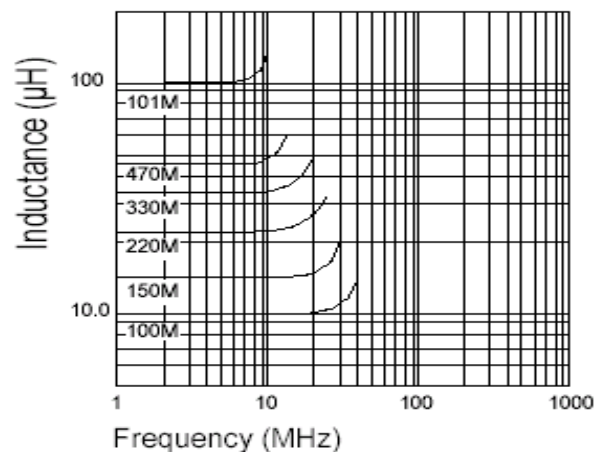
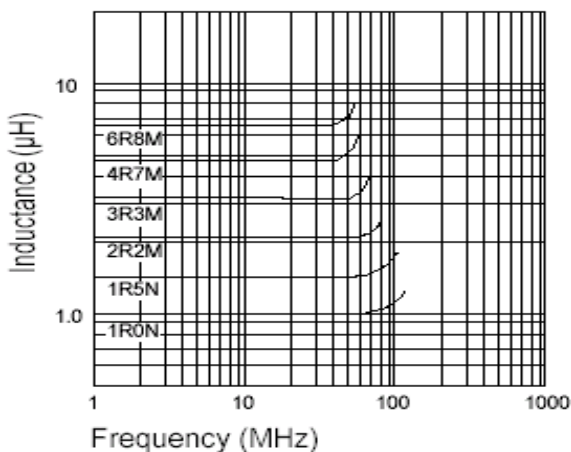


UNIT: mm

### Electrical Specification

Part Number	MARK	Inductance (μH)	TEST FREQ (MHz)	DCR (Ω) Max.	Isat (A) Max.	I <sub>rms</sub> (A) Max.	TOL.
WLPN303015N1R0PB	1R0	1.0	1	0.048	2.10	2.10	30%
WLPN303015N1R5PB	1R5	1.5	1	0.066	1.80	1.90	
WLPN303015M2R2PB	2R2	2.2	1	0.072	1.48	1.60	20%
WLPN303015M3R3PB	3R3	3.3	1	0.112	1.21	1.45	
WLPN303015M4R7PB	4R7	4.7	1	0.136	1.08	1.25	
WLPN303015M6R8PB	6R8	6.8	1	0.211	0.90	0.90	
WLPN303015M100PB	100	10	1	0.276	0.75	0.87	
WLPN303015M120PB	120	12	1	0.416	0.70	0.68	
WLPN303015M150PB	150	15	1	0.422	0.58	0.65	
WLPN303015M220PB	220	22	1	0.622	0.47	0.55	
WLPN303015M330PB	330	33	1	0.959	0.39	0.45	
WLPN303015M470PB	470	47	1	1.406	0.32	0.40	
WLPN303015M101PB	101	100	1	2.920	0.23	0.25	

L vs Frequency



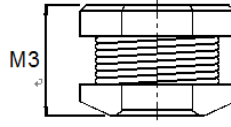
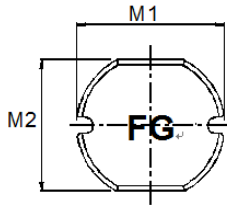
# SMD Wire Wound Power Inductors WLSN032D Series (UNSHIELDED)

## SMD Wire Wound Power Inductors WLSN032D Series (UNSHIELDED)

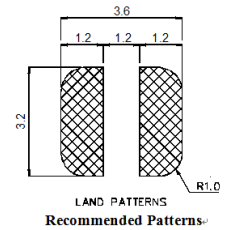
### Mechanical Dimensions

(Unit: mm)

WLSN032D



	DIM.	TOL.
M1	3.3	±0.3
M2	3.0	±0.3
M3	2.1	±0.3



### Electrical Specification

Part Number	Marking	L (uH)	Inductance Tolerance	Test Freq (KHz)	DCR (Ω) Max.	Rated Current (A)
WLSN032DZ0M1R0PB	BA	1.0	± 20%	100	0.07	2.080
WLSN032DZ0M1R4PB	BC	1.4	± 20%	100	0.09	1.860
WLSN032DZ0M1R8PB	BE	1.8	± 20%	100	0.11	1.800
WLSN032DZ0M2R2PB	CC	2.2	± 20%	100	0.13	1.390
WLSN032DZ0M2R7PB	CH	2.7	± 20%	100	0.14	1.320
WLSN032DZ0M3R3PB	DD	3.3	± 20%	100	0.20	1.250
WLSN032DZ0M3R9PB	DJ	3.9	± 20%	100	0.21	1.200
WLSN032DZ0M4R7PB	EH	4.7	± 20%	100	0.33	1.030
WLSN032DZ0M5R6PB	FG	5.6	± 20%	100	0.35	0.910
WLSN032DZ0M6R8PB	GI	6.8	± 20%	100	0.38	0.850
WLSN032DZ0M8R2PB	IC	8.2	± 20%	100	0.43	0.820
WLSN032DZ0M100PB	KA	10	± 20%	100	0.50	0.740
WLSN032DZ0M120PB	QA	12	± 20%	100	0.65	0.640
WLSN032DZ0M150PB	MA	15	± 20%	100	0.82	0.600
WLSN032DZ0M180PB	RA	18	± 20%	100	0.90	0.540
WLSN032DZ0M220PB	LA	22	± 20%	100	1.14	0.500
WLSN032DZ0M270PB	SA	27	± 20%	100	1.39	0.430
WLSN032DZ0M330PB	NA	33	± 20%	100	1.55	0.400
WLSN032DZ0M390PB	PA	39	± 20%	100	2.15	0.370
WLSN032DZ0M470PB	OA	47	± 20%	100	2.44	0.360
WLSN032DZ0M560PB	UA	56	± 20%	100	2.68	0.310
WLSN032DZ0M680PB	VA	68	± 20%	100	3.05	0.300
WLSN032DZ0M820PB	XA	82	± 20%	100	3.48	0.280
WLSN032DZ0M221PB	LB	220	± 20%	100	6.30	0.200
WLSN032DZ0M471PB	OB	470	± 20%	100	14.00	0.090

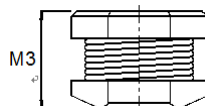
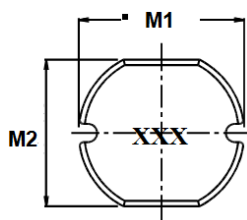
TEST INSTRUMENT: HP4284A · CHROMA 3302/1320/16502

## SMD Wire Wound Power Inductors WLSN043D Series (UNSHIELDED)

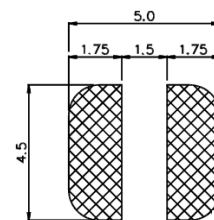
### Mechanical Dimensions

(Unit: mm)

WLSN043D



	DIM.	TOL.
M1	4.5	±0.3
M2	4.0	±0.3
M3	3.2	±0.3



LAND PATTERNS  
Recommended Patterns

### Electrical Specification

Part Number	Marking	L (uH)	Inductance Tolerance	Test Freq (KHz)	DCR (Ω) MAX.	Rated Current (A)
WLSN043DZ0M1R0LB	1R0	1.0	± 20%	100	0.0487	2.56
WLSN043DZ0M1R2LB	1R2	1.2	± 20%	100	0.04	2.25
WLSN043DZ0M1R4LB	1R4	1.4	± 20%	100	0.0562	2.52
WLSN043DZ0M1R8LB	1R8	1.8	± 20%	100	0.0637	1.95
WLSN043DZ0M2R2LB	2R2	2.2	± 20%	100	0.0712	1.75
WLSN043DZ0M2R7LB	2R7	2.7	± 20%	100	0.0787	1.58
WLSN043DZ0M3R3LB	3R3	3.3	± 20%	100	0.0862	1.44
WLSN043DZ0M3R9LB	3R9	3.9	± 20%	100	0.0937	1.33
WLSN043DZ0M4R7LB	4R7	4.7	± 20%	100	0.1087	1.15
WLSN043DZ0M5R6LB	5R6	5.6	± 20%	100	0.1257	0.99
WLSN043DZ0M6R8LB	6R8	6.8	± 20%	100	0.1312	0.95
WLSN043DZ0M8R2LB	8R2	8.2	± 20%	100	0.1462	0.84
WLSN043DZ0M100LB	100	10	± 20%	100	0.182	1.04
WLSN043DZ0M120LB	120	12	± 20%	100	0.210	0.97
WLSN043DZ0M150LB	150	15	± 20%	100	0.235	0.85
WLSN043DZ0M180LB	180	18	± 20%	100	0.338	0.74
WLSN043DZ0M220LB	220	22	± 20%	100	0.378	0.68
WLSN043DZ0M270LB	270	27	± 20%	100	0.522	0.62
WLSN043DZ0K330LB	330	33	± 20%	100	0.540	0.56
WLSN043DZ0K390LB	390	39	± 20%	100	0.587	0.52
WLSN043DZ0K470LB	470	47	± 20%	100	0.844	0.44
WLSN043DZ0K560LB	560	56	± 20%	100	0.937	0.42
WLSN043DZ0K680LB	680	68	± 20%	100	1.117	0.37
WLSN043DZ0K331LB	331	330	± 20%	100	3.35	0.1

a. Operating Temp : -25°C to +105°C.

b. Inductance measured using the HP4284A LCR meter/CHROMA 3302.1320.16502

c. DCR measured using the 502BC milli-ohm meter.

d. Inductance drops no more than 10% of initial value at rated current, temperature rises  $\Delta t < 40^\circ\text{C}$



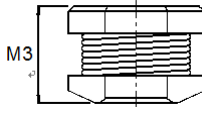
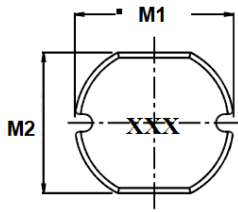
# SMD Wire Wound Power Inductors WLSN054D Series (UNSHIELDED)

## SMD Wire Wound Power Inductors WLSN054D Series (UNSHIELDED)

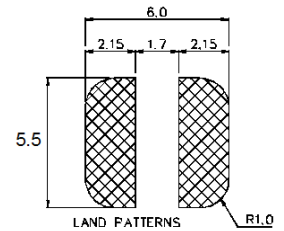
### Mechanical Dimensions

(Unit: mm)

WLSN054D



	DIM.	TOL.
M1	5.8	±0.3
M2	5.2	±0.3
M3	4.5	±0.35



Recommended Patterns<sup>a</sup>

### Electrical Specification

Part Number	Marking	L (uH)	Inductance Tolerance	Test Freq (KHz)	DCR (Ω) MAX.	Rated Current (A)
WLSN054DZ0M1R0LB	1R0	1.0	± 20%	100	0.015	4.00
WLSN054DZ0M1R9LB	1R9	1.9	± 20%	100	0.039	3.00
WLSN054DZ0M2R2LB	2R2	2.2	± 20%	100	0.020	4.00
WLSN054DZ0M3R3LB	3R3	3.3	± 20%	100	0.021	3.00
WLSN054DZ0M4R7LB	4R7	4.7	± 20%	100	0.028	2.00
WLSN054DZ0M6R8LB	6R8	6.8	± 20%	100	0.042	2.00
WLSN054DZ0M100LB	100	10	± 20%	100	0.10	1.44
WLSN054DZ0M120LB	120	12	± 20%	100	0.12	1.40
WLSN054DZ0M150LB	150	15	± 20%	100	0.14	1.30
WLSN054DZ0M180LB	180	18	± 20%	100	0.15	1.23
WLSN054DZ0M220LB	220	22	± 20%	100	0.18	1.11
WLSN054DZ0M270LB	270	27	± 20%	100	0.20	0.97
WLSN054DZ0L330LB	330	33	± 15%	100	0.23	0.88
WLSN054DZ0L390LB	390	39	± 15%	100	0.32	0.80
WLSN054DZ0L470LB	470	47	±15%	100	0.37	0.72
WLSN054DZ0K560LB	560	56	± 10%	100	0.42	0.68
WLSN054DZ0K680LB	680	68	± 10%	100	0.46	0.61
WLSN054DZ0K820LB	820	82	± 10%	100	0.60	0.58
WLSN054DZ0K101LB	101	100	± 10%	10	0.70	0.52
WLSN054DZ0K121LB	121	120	± 10%	10	0.93	0.48
WLSN054DZ0K151LB	151	150	± 10%	10	1.10	0.40
WLSN054DZ0K181LB	181	180	± 10%	10	1.38	0.38
WLSN054DZ0K221LB	221	220	± 10%	10	1.57	0.35
WLSN054DZ0K271LB	271	270	± 10%	10	1.85	0.30

a. Tolerance : M:±20%, L:±15%, K:±10%

b. Operating Temp : -25°C to +105°C.

c. Inductance measured using the HP4284A LCR meter, CHROMA1320 & 3302 & 16502

d. DCR measured using the 502BC milli-ohm meter.

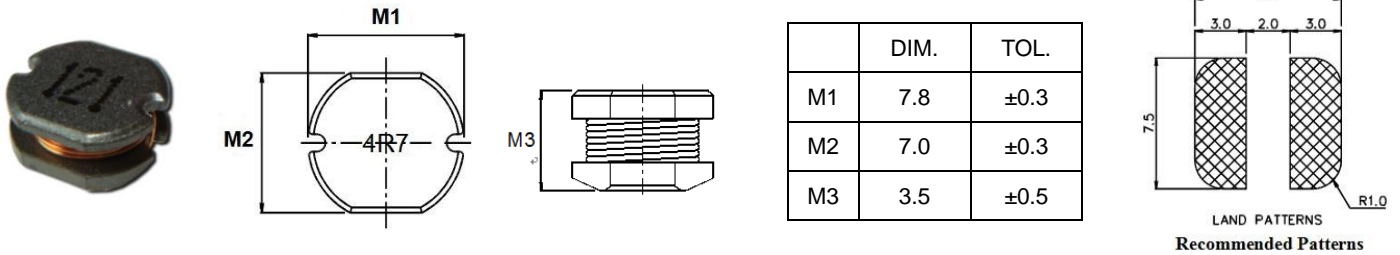
e. Inductance drops no more than 10% of initial value at rated current, temperature rises  $\Delta t < 40^\circ\text{C}$ .

## SMD Wire Wound Power Inductors WLSN073D Series (UNSHIELDED)

### Mechanical Dimensions

(Unit: mm)

WLSN073D



### Electrical Specification

Part Number	Marking	L (uH)	Inductance Tolerance	Test Freq (KHz)	DCR (Ω) MAX.	Rated Current (A)
WLSN073DZ0M100LB	100	10	± 20%	100	0.0803	1.44
WLSN073DZ0M120LB	120	12	± 20%	100	0.0897	1.39
WLSN073DZ0M150LB	150	15	± 20%	100	0.104	1.24
WLSN073DZ0M180LB	180	18	± 20%	100	0.111	1.12
WLSN073DZ0M220LB	220	22	± 20%	100	0.129	1.07
WLSN073DZ0M270LB	270	27	± 20%	100	0.153	0.94
WLSN073DZ0M330LB	330	33	± 20%	100	0.170	0.85
WLSN073DZ0M390LB	390	39	± 20%	100	0.217	0.74
WLSN073DZ0M470LB	470	47	± 20%	100	0.252	0.68
WLSN073DZ0K560LB	560	56	± 10%	100	0.282	0.64
WLSN073DZ0K680LB	680	68	± 10%	100	0.332	0.59
WLSN073DZ0K820LB	820	82	± 10%	100	0.406	0.54
WLSN073DZ0K101LB	101	100	± 10%	10	0.481	0.51
WLSN073DZ0K121LB	121	120	± 10%	10	0.536	0.49
WLSN073DZ0K151LB	151	150	± 10%	10	0.755	0.40
WLSN073DZ0K181LB	181	180	± 10%	10	1.022	0.36
WLSN073DZ0K221LB	221	220	± 10%	10	1.200	0.31
WLSN073DZ0K271LB	271	270	± 10%	10	1.306	0.29
WLSN073DZ0K331LB	331	330	± 10%	10	1.495	0.28

TOLERANCE : M:±20%, L:±15%, K:±10%

TEST INSTRUMENT: HP4285A/ Chroma 3302,1320.16502

\* Inductance drops no more than 20% at rated current applied or temperature rises  $\Delta t \leq 40^\circ\text{C}$

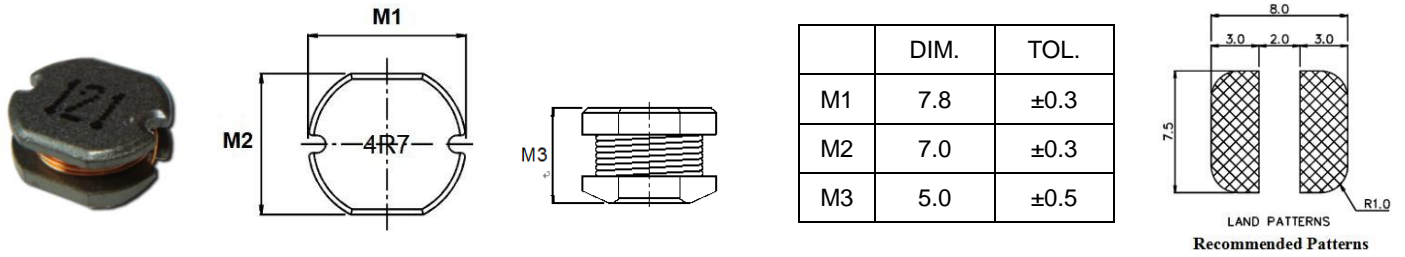
# SMD Wire Wound Power Inductors WLSN075D Series (UNSHIELDED)

## SMD Wire Wound Power Inductors WLSN075D Series (UNSHIELDED)

### Mechanical Dimensions

(Unit: mm)

WLSN075D



### Electrical Specification

Part Number	MARKING	Inductance (uH)	TEST FREQ. (KHz)	DCR (Ω) MAX.	Rated Current (A)
WLSN075DZ0K6R8LB	6R8	6.8	100	0.058	3.0
WLSN075DZ0K8R2LB	8R2	8.2	100	0.06	2.4
WLSN075DZ0K100LB	100	10	100	0.07	2.30
WLSN075DZ0K120LB	120	12	100	0.08	2.00
WLSN075DZ0K150LB	150	15	100	0.09	1.80
WLSN075DZ0K180LB	180	18	100	0.10	1.60
WLSN075DZ0K220LB	220	22	100	0.11	1.50
WLSN075DZ0K270LB	270	27	100	0.12	1.30
WLSN075DZ0K330LB	330	33	100	0.13	1.20
WLSN075DZ0K390LB	390	39	100	0.16	1.10
WLSN075DZ0K470LB	470	47	100	0.18	1.10
WLSN075DZ0K560LB	560	56	100	0.24	0.94
WLSN075DZ0K680LB	680	68	100	0.28	0.85
WLSN075DZ0K820LB	820	82	100	0.37	0.78
WLSN075DZ0K101LB	101	100	10	0.43	0.72
WLSN075DZ0K121LB	121	120	10	0.47	0.66
WLSN075DZ0K151LB	151	150	10	0.64	0.58
WLSN075DZ0K181LB	181	180	10	0.71	0.51
WLSN075DZ0K221LB	221	220	10	0.96	0.49
WLSN075DZ0K271LB	271	270	10	1.11	0.42
WLSN075DZ0K331LB	331	330	10	1.26	0.40
WLSN075DZ0K391LB	391	390	10	1.77	0.36
WLSN075DZ0K471LB	471	470	10	1.96	0.34
WLSN075DZ0K222LB	222	2200	100	7.2	0.15
WLSN075DZ0K302LB	302	3000	1	10.0	0.12

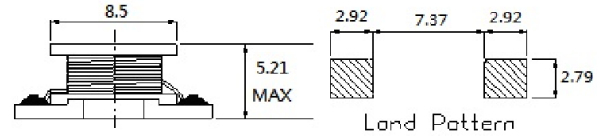
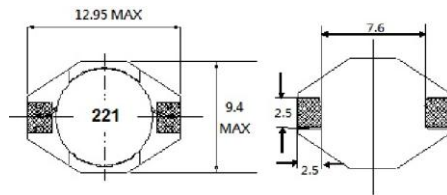
Tolerance : K : ±10%

## SMD Wire Wound Power Inductors WLSN084F Series (UNSHIELDED)

### Mechanical Dimensions

(Unit: mm)

WLSN084F



### Electrical Specification

Part Number	Marking	Inductance (uH)	TEST FREQ. (KHz)	DCR (Ω) MAX.	I sat (A)	Rated Current (A)
WLSN084FZ0M1R0LB	1R0	1.0	100	0.009	9.00	6.80
WLSN084FZ0M1R5LB	1R5	1.5	100	0.010	8.00	6.40
WLSN084FZ0M2R2LB	2R2	2.2	100	0.012	7.00	6.10
WLSN084FZ0M3R3LB	3R3	3.3	100	0.015	6.40	5.40
WLSN084FZ0M4R7LB	4R7	4.7	100	0.018	5.40	4.80
WLSN084FZ0M6R8LB	6R8	6.8	100	0.027	4.60	4.40
WLSN084FZ0M100LB	100	10.0	100	0.038	3.80	3.90
WLSN084FZ0M150LB	150	15.0	100	0.046	3.00	3.10
WLSN084FZ0M220LB	220	22.0	100	0.085	2.60	2.70
WLSN084FZ0M330LB	330	33.0	100	0.100	2.00	2.10
WLSN084FZ0M470LB	470	47.0	100	0.140	1.60	1.80
WLSN084FZ0M680LB	680	68.0	100	0.200	1.40	1.50
WLSN084FZ0M101LB	101	100.0	100	0.280	1.20	1.30
WLSN084FZ0M151LB	151	150.0	100	0.400	1.00	1.00
WLSN084FZ0M221LB	221	220.0	100	0.610	0.80	0.80
WLSN084FZ0M331LB	331	330.0	100	1.020	0.60	0.60
WLSN084FZ0M471LB	471	470.0	100	1.270	0.50	0.50
WLSN084FZ0M681LB	681	680.0	100	2.020	0.40	0.40
WLSN084FZ0M102LB	102	1000.0	100	3.000	0.30	0.30

a. Tolerance : M : ±20%

b. Operating Temp : -25°C to +105°C.

c. Inductance measured using the HP4284A LCR meter, CHROMA3302/1320/16502.

d. DCR measured using the 502BC milli-ohm meter.

e. Inductance drops no more than 10 % of initial value at Isat , temperature rises Δt< 40°C at rated current.

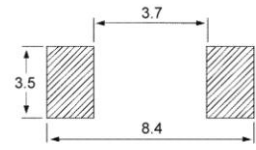
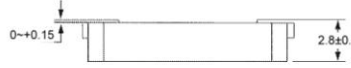
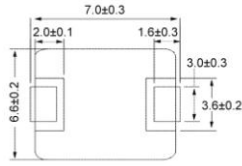
# SMD Molded Power Choke WLPM706630 Series

## SMD Molded Power Choke WLPM706630 Series

### Mechanical Dimensions

(Unit: mm)

WLPM706630



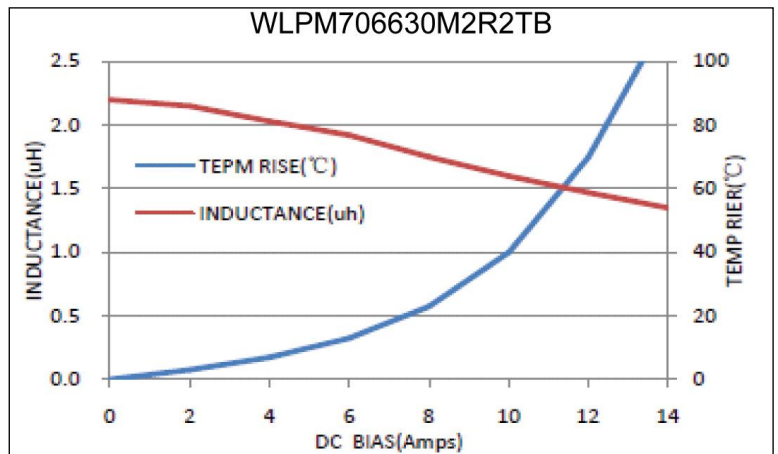
Recommend Pattern

### Electrical Specification

Part Number.	Inductance	DC Resistance		Heating Rating Current	Saturation Current
	L (μH)	DCR (mΩ)		I <sub>dc</sub> (A)	I <sub>sat</sub> (A)
	±20 %, 100 kHz, 1V	TYP.	MAX.	TYP	TYP.
WLPM706630MR22LB	0.22	2.5	3.0	24.0	34.0
WLPM706630MR24LB	0.24	2.6	3.1	23.0	26.0
WLPM706630MR33LB	0.33	3.0	3.5	19.0	25.0
WLPM706630MR47LB	0.47	3.5	4.1	18.0	20.0
WLPM706630MR56LB	0.56	3.9	4.5	16.5	18.0
WLPM706630MR68LB	0.68	4.8	5.3	16.0	17.0
WLPM706630M1R0LB	1.0	6.7	7.4	12.0	15.0
WLPM706630M1R5LB	1.5	10.6	12.1	12.0	14.0
WLPM706630M2R2LB	2.2	13.5	15.0	9.5	10.0
WLPM706630M3R3LB	3.3	18.0	22.0	8.5	9.5
WLPM706630M4R7LB	4.7	28.0	33.0	6.0	6.5
WLPM706630M6R8LB	6.8	42.5	48.0	5.5	6.0
WLPM706630M8R2LB	8.2	54.0	60.0	5.5	6.0
WLPM706630M100LB	10.0	62.0	67.0	4.8	5.5
WLPM706630M150LB	15.0	104.0	115.0	4.0	4.5
WLPM706630M220LB	22.0	180.0	200.0	2.3	3.0
WLPM706630M330LB	33.0	280.0	310.0	2.5	2.5

### Characteristic Curve (2R2)

1. All test data is referenced to 25 °C ambient.
2. Operating temperature range - 55 °C to + 125 °C.
3. DC current(A) that will cause an approximate ΔT of 40 °C.
4. DC current(A) that will cause L0 to drop approximately 30%.
5. The temperature (ambient + temprise) should not exceed 125 °C under worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

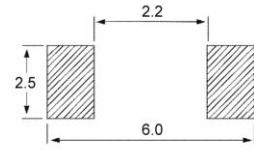
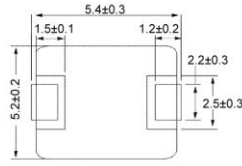


## SMD Molded Power Choke WLPM545230 Series

### Mechanical Dimensions

(Unit: mm)

WLPM545230



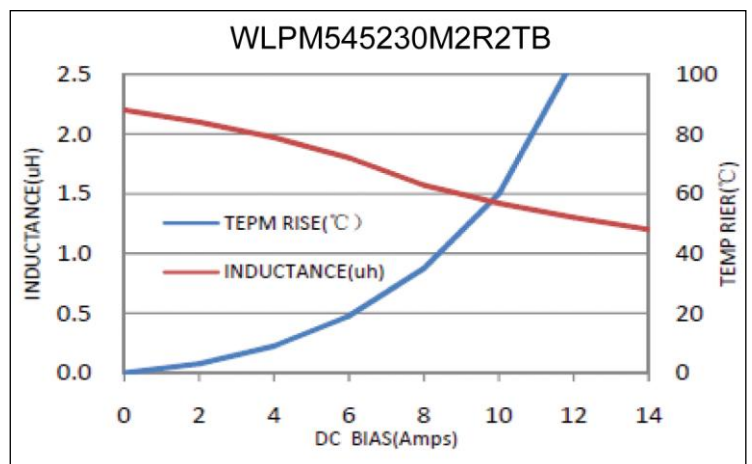
Recommend Pattern

### Electrical Specification

Part Number.	Inductance	DC Resistance		Heating Rating Current	Saturation Current
	L (μH)	DCR (mΩ)		Idc (A)	Isat (A)
	±20 %, 100 kHz, 1V	TYP.	MAX.	TYP.	TYP.
WLPM545230MR20LB	0.20	3.5	3.9	14.0	14.5
WLPM545230MR47LB	0.47	7.4	8.5	11.0	12.0
WLPM545230MR68LB	0.68	11.0	12.0	9.0	11.5
WLPM545230M1R0LB	1.0	13.0	14.0	8.5	11.0
WLPM545230M1R2LB	1.2	15.0	16.0	8.5	11.0
WLPM545230M1R5LB	1.5	20.0	25.0	8.2	8.5
WLPM545230M2R2LB	2.2	25.0	29.0	7.0	7.5
WLPM545230M3R3LB	3.3	32.0	38.0	5.5	6.0
WLPM545230M4R7LB	4.7	50.0	60.0	4.5	5.0
WLPM545230M6R8LB	6.8	75.0	90.0	3.5	4.0
WLPM545230M100LB	10.0	110.0	125.0	3.2	3.5

### Characteristic Curve (2R2)

- All test data is referenced to 25 °C ambient.
- Operating temperature range - 55 °C to + 125 °C.
- DC current(A) that will cause an approximate ΔT of 40 °C.
- DC current(A) that will cause L0 to drop approximately 30%.
- The temperature (ambient + temprise) should not exceed 125 °C under worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.





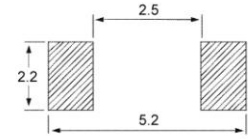
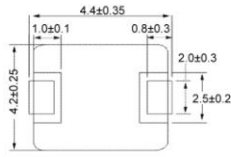
# SMD Molded Power Choke WLP444220 Series

## SMD Molded Power Choke WLP444220 Series

### Mechanical Dimensions

(Unit: mm)

WLP444220



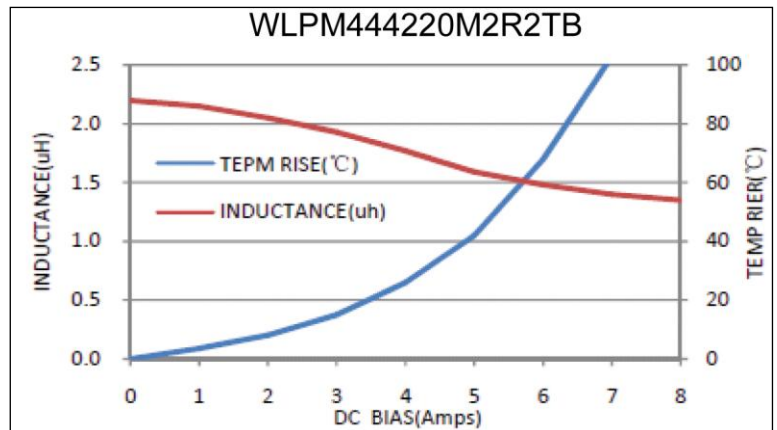
Recommend Pattern

### Electrical Specification

Part Number.	Inductance	DC Resistance		Heating Rating Current	Saturation Current
	L (μH)	DCR (mΩ)		Idc (A)	Isat (A)
	±20 %, 100 kHz, 1V	TYP.	MAX.	TYP.	TYP.
WLP444220MR10LB	0.10	3.5	4.0	13.0	22.0
WLP444220MR22LB	0.22	6.0	6.6	9.5	12.5
WLP444220MR47LB	0.47	12.5	14.0	7.5	9.5
WLP444220MR56LB	0.56	14.0	16.0	7.0	10.0
WLP444220MR68LB	0.68	16.0	18.0	7.0	9.0
WLP444220M1R0LB	1.0	24.0	27.0	6.0	7.0
WLP444220M1R2LB	1.2	24.0	27.0	6.0	7.0
WLP444220M1R5LB	1.5	38.0	46.0	5.0	6.0
WLP444220M2R2LB	2.2	52.0	58.0	4.5	5.0
WLP444220M3R3LB	3.3	74.0	87.0	3.3	4.0
WLP444220M4R7LB	4.7	92.0	105.0	2.8	3.0
WLP444220M6R8LB	6.8	160.0	175.0	2.4	2.5
WLP444220M100LB	10.0	256.0	282.0	1.6	2.2

### Characteristic Curve (2R2)

1. All test data is referenced to 25 °C ambient.
2. Operating temperature range - 55 °C to + 125 °C.
3. DC current(A) that will cause an approximate  $\Delta T$  of 40 °C.
4. DC current(A) that will cause L0 to drop approximately 30%.
5. The temperature (ambient + temprise) should not exceed 125 °C under worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

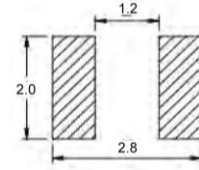
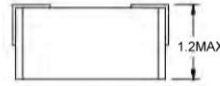
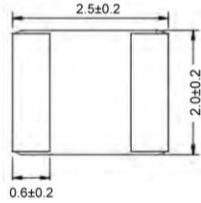
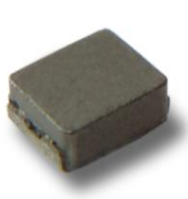


## SMD Molded Power Choke WLPM252012 Series

### Mechanical Dimensions

(Unit: mm)

WLPM252012



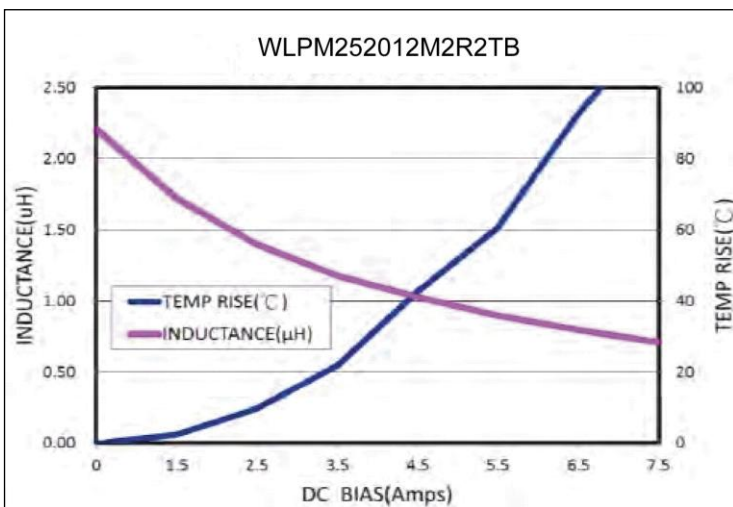
Recommend Pattern

### Electrical Specification

Part Number.	Inductance	DC Resistance		Heating Rating Current	Saturation Current
	L (μH)	DCR (mΩ)		I <sub>dc</sub> (A)	I <sub>sat</sub> (A)
	±20 %, 100 kHz, 1V	TYP.	MAX.	TYP.	TYP.
WLPM252012MR33PB	0.33	14	17	5.6	4.3
WLPM252012MR47PB	0.47	20	25	4.5	3.8
WLPM252012M1R0PB	1.00	43	53	3.1	2.8
WLPM252012M2R2PB	2.20	84	98	2.3	1.8
WLPM252012M4R7PB	4.70	200	240	1.5	1.5

- All test data is referenced to 25 °C ambient.
- Operating temperature range - 55 °C to + 125 °C.
- DC current(A) that will cause an approximate ΔT of 40 °C.
- DC current(A) that will cause L0 to drop approximately 30%.
- The temperature (ambient + temprise) should not exceed 125 °C under worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

### Characteristic Curve (2R2)



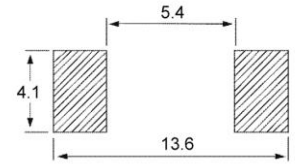
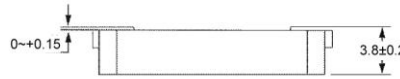
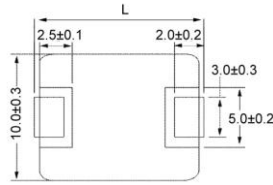
# SMD Molded Power Choke WLPMA0A040 Series

## SMD Molded Power Choke WLPMA0A040 Series

### Mechanical Dimensions

(unit: :mm)

WLPMA0A040



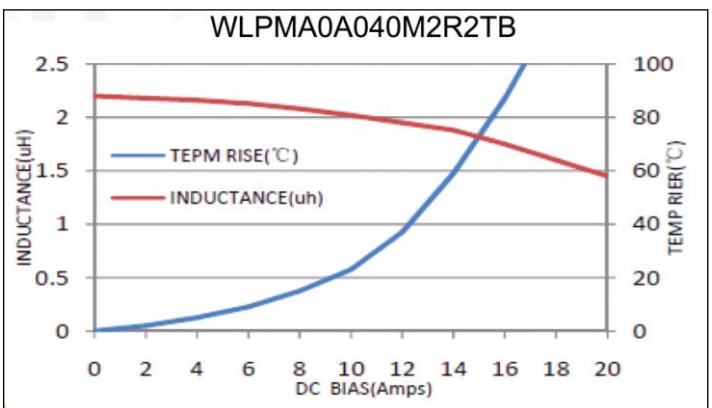
L: 10.85 ± 0.35mm for 2R2/3R3/4R7/6R8/8R2/100/150/220/330/470/560/680  
 L: 11.15 ± 0.35mm for R22/R36/R47/R56/R68/1R0/1R5

Recommend Pattern

### Electrical Specification

Part Number.	Inductance	DC Resistance		Heating Rating Current	Saturation Current
	L (μH)	DCR (mΩ)		Idc (A)	Isat (A)
	±20 %, 100 kHz, 1V	TYP.	MAX.	TYP.	TYP.
WLPMA0A040MR22LB	0.22	0.9	1.0	35.0	60.0
WLPMA0A040MR36LB	0.36	1.05	1.2	30.0	50.0
WLPMA0A040MR47LB	0.47	1.5	1.7	30.0	40.0
WLPMA0A040MR56LB	0.56	1.6	1.8	25.0	33.0
WLPMA0A040MR68LB	0.68	2.1	2.4	23.0	30.0
WLPMA0A040M1R0LB	1.0	3.0	3.3	18.0	28.0
WLPMA0A040M1R5LB	1.5	3.8	4.2	16.0	26.0
WLPMA0A040M2R2LB	2.2	6.0	7.0	12.0	18.0
WLPMA0A040M3R3LB	3.3	10.0	12.0	10.0	16.0
WLPMA0A040M4R7LB	4.7	17.0	20.0	8.5	15.0
WLPMA0A040M6R8LB	6.8	22.0	25.0	7.0	12.0
WLPMA0A040M8R2LB	8.2	25.0	27.0	6.0	9.0
WLPMA0A040M100LB	10.0	27.0	30.0	7.5	8.5
WLPMA0A040M150LB	15.0	40.0	45.0	6.5	7.0
WLPMA0A040M220LB	22.0	58.0	66.0	5.0	5.5
WLPMA0A040M330LB	33.0	85.0	92.0	4.4	5.0
WLPMA0A040M470LB	47.0	130.0	145.0	3.3	3.5
WLPMA0A040M560LB	56.0	150.0	170.0	3.8	2.8
WLPMA0A040M680LB	68.0	178.0	195.0	2.3	3.0

### Characteristic Curve (2R2)



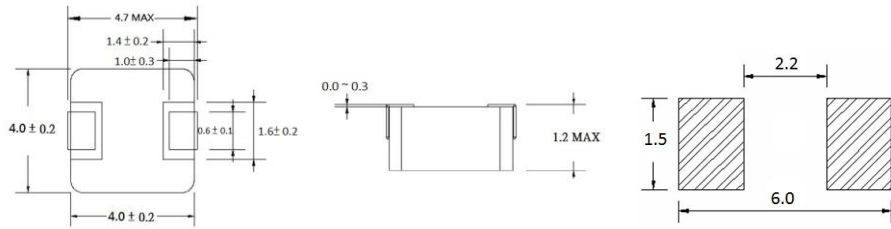
- 1.All test data is referenced to 25 °C ambient.
- 2.Operating temperature range - 55 °C to + 125 °C.
- 3.DC current(A) that will cause an approximate ΔT of 40 °C.
- 4.DC current(A) that will cause L0 to drop approximately 30%.
- 5.The temperature (ambient + temprise) should not exceed 125 °C under worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

## SMD Molded Power Choke Inductors WLQM474012 Series (AEC-Q200)

### Mechanical Dimensions

(Unit: mm)

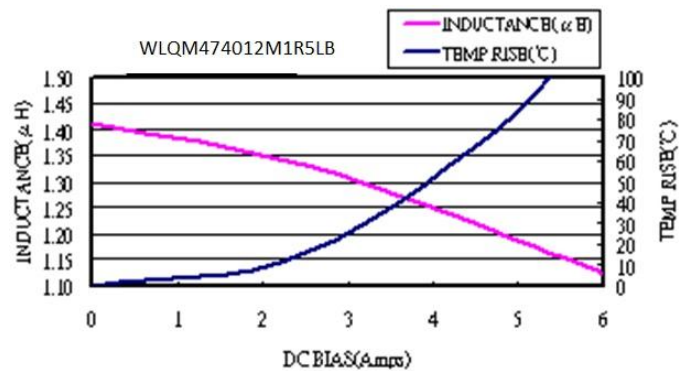
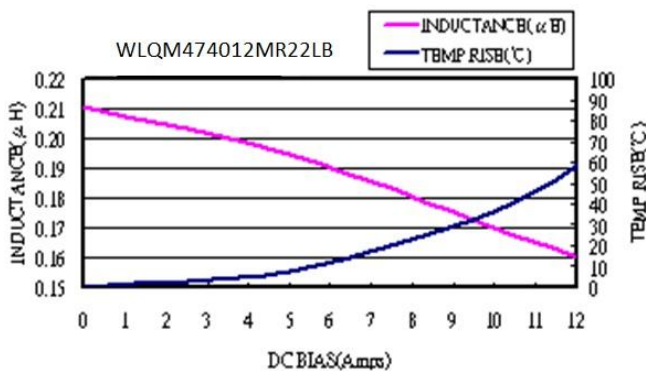
WLQM474012



### Electrical Specification

Part Number	L (uH)	Tolerance	Measuring Frequency (kHz), 0.25V	RDC Maximum (mΩ)		Heating Rating Current [A] (TYP.)	Saturation Current [A] (TYP.)
				TYP.	MAX.		
WLQM474012MR22LB	0.22	± 20%	100	7.8	9.3	9	10
WLQM474012MR47LB	0.47	± 20%	100	16.5	20	6.5	9
WLQM474012MR56LB	0.56	± 20%	100	22	25	5.5	8
WLQM474012M1R0LB	1.0	± 20%	100	28.3	33.6	4.8	6.3
WLQM474012M1R2LB	1.2	± 20%	100	41	45	3	6
WLQM474012M1R5LB	1.5	± 20%	100	45	50	3	5.5
WLQM474012M2R2LB	2.2	± 20%	100	60	66	2.7	4.5

- All test data is referenced to 25°C ambient.
- Idc : DC current (A) that will cause an approximate ΔT of 40°C
- Isat : DC current (A) that will cause LO to drop approximately 20%
- Operating Temperature Range - 55°C to + 125°C
- The part temperature (ambient + temp rise) should not exceed 125°C under worst case operating conditions, circuit design, component placement, PWB trace size and thickness, airflow and other cooling provision all affect the part temperature. part temperature should be verified in the end application.



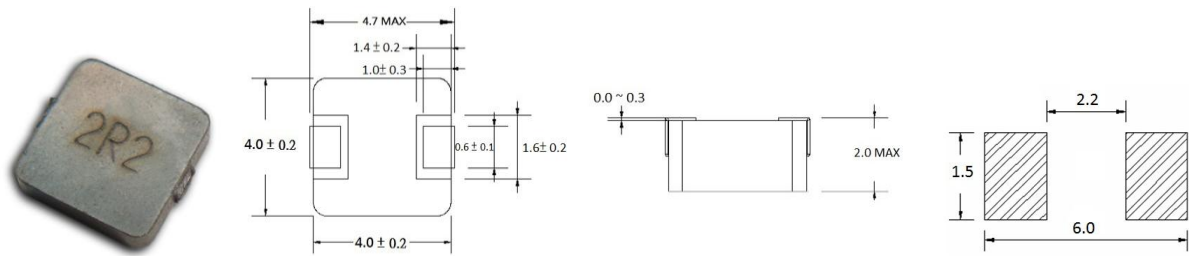
# SMD Molded Power Choke Inductors WLQM474020 Series (AEC-Q200)

## SMD Molded Power Choke Inductors WLQM474020 Series (AEC-Q200)

### Mechanical Dimensions

(Unit: mm)

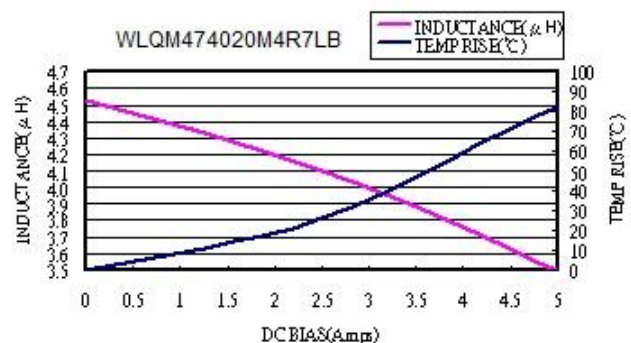
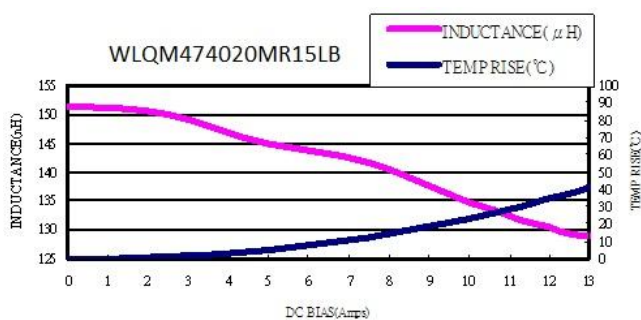
WLQM474020



### Electrical Specification

Part Number	L(uH)	Tolerance	Measuring Frequency (kHz),0.25V	RDC Maximum (mΩ)		Heating Rating Current [A] (TYP.)	Saturation Current [A] (TYP.)
				TYP.	MAX.		
WLQM474020MR15LB	0.15	± 20%	100	3.6	4.3	13	13
WLQM474020MR22LB	0.22	± 20%	100	5.4	7	11.5	11.5
WLQM474020MR36LB	0.36	± 20%	100	9.5	12	9	11
WLQM474020MR47LB	0.47	± 20%	100	10	12	7	10
WLQM474020MR56LB	0.56	± 20%	100	12.8	14.7	7	8
WLQM474020MR68LB	0.68	± 20%	100	13.5	17	6.3	7
WLQM474020MR82LB	0.82	± 20%	100	16	18	6	6.5
WLQM474020MR88LB	0.88	± 20%	100	16	18	6	6.5
WLQM474020M1R0LB	1.0	± 20%	100	18	21.5	5	6
WLQM474020M1R2LB	1.2	± 20%	100	19	22	5	5
WLQM474020M1R5LB	1.5	± 20%	100	25.4	29	5.1	5
WLQM474020M2R2LB	2.2	± 20%	100	33	40	3.9	5
WLQM474020M3R3LB	3.3	± 20%	100	42	48	3.3	4.3
WLQM474020M4R7LB	4.7	± 20%	100	68	75	2.7	4
WLQM474020M5R6LB	5.6	± 20%	100	81	90	2.4	3.5

- All test data is referenced to 25°C ambient.
- I<sub>dc</sub> : DC current (A) that will cause an approximate ΔT of 40°C
- I<sub>sat</sub> : DC current (A) that will cause LO to drop approximately 20%
- Operating Temperature Range - 55°C to + 125°C
- The part temperature (ambient + temp rise) should not exceed 125°C under worse case operating conditions, circuit design, component placement , PWB trace size and thickness , airflow and other cooling provision all affect the part temperature. part temperature should be verified in the end application.



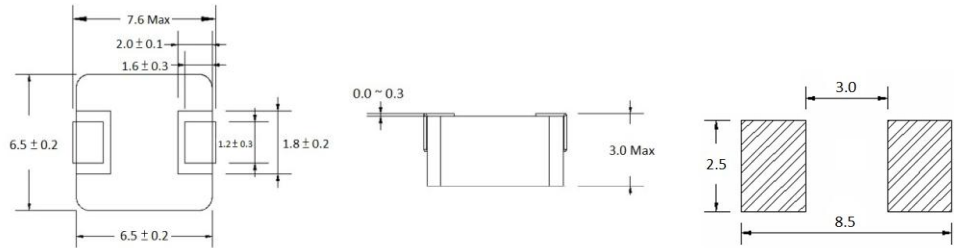


## SMD Molded Power Choke Inductors WLQM766530 Series (AEC-Q200)

### Mechanical Dimensions

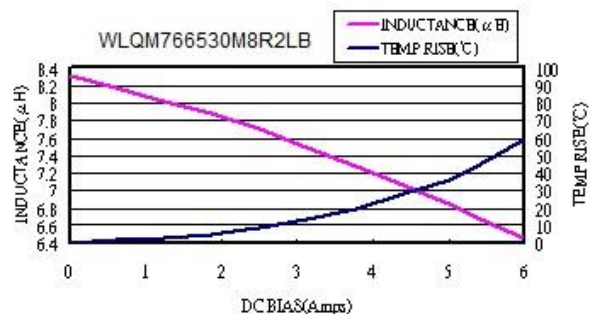
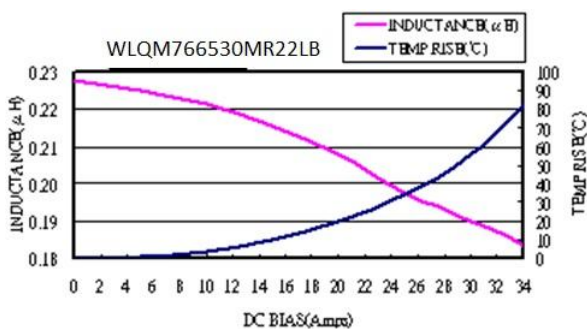
(Unit: mm)

WLQM766530



### Electrical Specification

Part Number	L(uH)	Tolerance	Measuring Frequency (kHz),0.25V	RDC Maximum (mΩ)		Heating Rating Current [A] (TYP.)	Saturation Current [A] (TYP.)
				TYP.	MAX.		
WLQM766530MR15LB	0.15	± 20%	100	1.6	1.92	29	38
WLQM766530MR22LB	0.22	± 20%	100	2.0	2.4	23	34
WLQM766530MR33LB	0.33	± 20%	100	3	3.4	18	30
WLQM766530MR36LB	0.36	± 20%	100	3.6	4.3	18	28
WLQM766530MR47LB	0.47	± 20%	100	3.8	4.5	17	27
WLQM766530MR56LB	0.56	± 20%	100	4.3	5	16	20
WLQM766530MR68LB	0.68	± 20%	100	4.5	5	16	20
WLQM766530MR82LB	0.82	± 20%	100	5.5	6.6	13	17
WLQM766530M1R0LB	1.0	± 20%	100	6.0	7.0	13	15
WLQM766530M1R1LB	1.1	± 20%	100	6	7	13	15
WLQM766530M1R5LB	1.5	± 20%	100	8	10	11	13
WLQM766530M2R2LB	2.2	± 20%	100	17.5	20	6.3	12
WLQM766530M3R3LB	3.3	± 20%	100	20	24	6	10
WLQM766530M4R7LB	4.7	± 20%	100	26	29	5.3	8
WLQM766530M5R6LB	5.6	± 20%	100	40	45	5	6
WLQM766530M6R8LB	6.8	± 20%	100	42	50	4.5	5.5
WLQM766530M8R2LB	8.2	± 20%	100	45	54	4.5	5
WLQM766530M9R0LB	9.0	± 20%	100	46.5	53	4.5	4.5





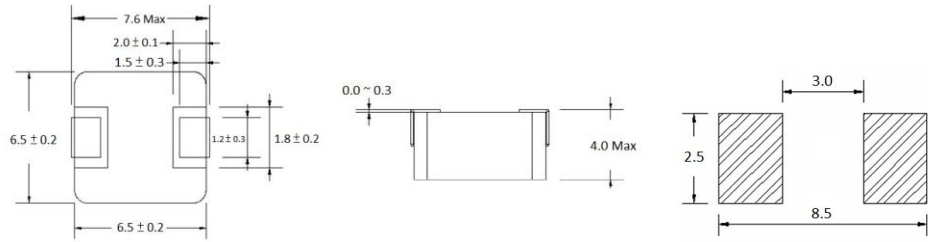
# SMD Molded Power Choke Inductors WLQM766540 Series (AEC-Q200)

## SMD Molded Power Choke Inductors WLQM766540 Series (AEC-Q200)

### Mechanical Dimensions

(Unit: mm)

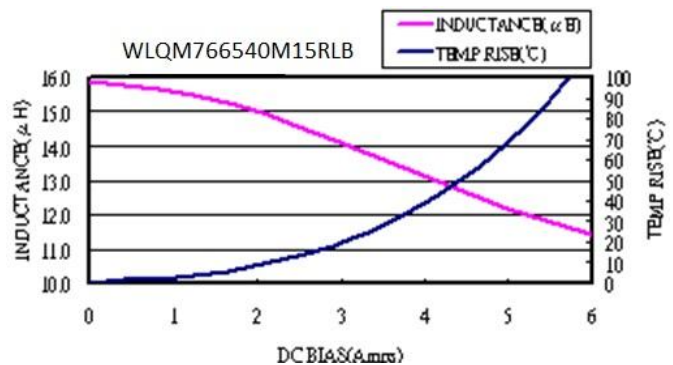
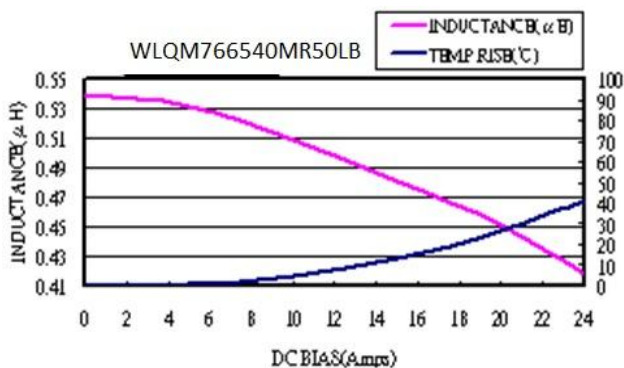
WLQM766540



### Electrical Specification

Part Number	L(μH)	Tolerance	Measuring Frequency (kHz), 0.25V	RDC Maximum (mΩ)		Heating Rating Current [A] (TYP.)	Saturation Current [A] (TYP.)
				TYP.	MAX.		
WLQM766540MR50LB	0.5	± 20%	100	2.8	3.4	20	21
WLQM766540M1R1LB	1.1	± 20%	100	4.6	5.5	15.3	19
WLQM766540M1R5LB	1.5	± 20%	100	8	10	11.5	13
WLQM766540M2R2LB	2.2	± 20%	100	9.8	12	11	11
WLQM766540M3R3LB	3.3	± 20%	100	12.5	16	10	10
WLQM766540M4R7LB	4.7	± 20%	100	18.4	24	6.7	8
WLQM766540M5R6LB	5.6	± 20%	100	21	29	6.3	8
WLQM766540M6R8LB	6.8	± 20%	100	29	33	6	7
WLQM766540M8R2LB	8.2	± 20%	100	34	39	5	5.5
WLQM766540M10RLB	10	± 20%	100	42.5	45	4.1	5
WLQM766540M12RLB	12	± 20%	100	46.3	53	4	5
WLQM766540M15RLB	15	± 20%	100	57.3	60	3.6	4.3

- All test data is referenced to 25°C ambient.
- Idc : DC current (A) that will cause an approximate ΔT of 40°C
- Isat : DC current (A) that will cause LO to drop approximately 20%
- Operating Temperature Range - 55°C to + 125°C
- The part temperature (ambient + temp rise) should not exceed 125°C under worst case operating conditions, circuit design, component placement, PWB trace size and thickness, airflow and other cooling provision all affect the part temperature. part temperature should be verified in the end application.

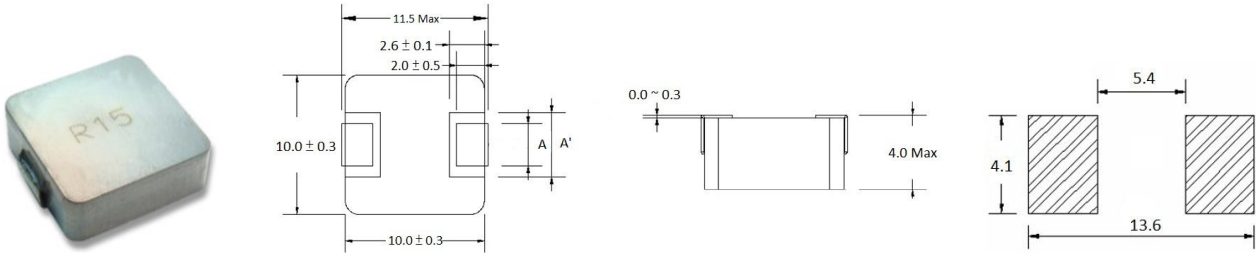


### SMD Molded Power Choke Inductors WLQMB0A040 Series (AEC-Q200)

#### Mechanical Dimensions

(Unit: mm)

WLQMB0A040

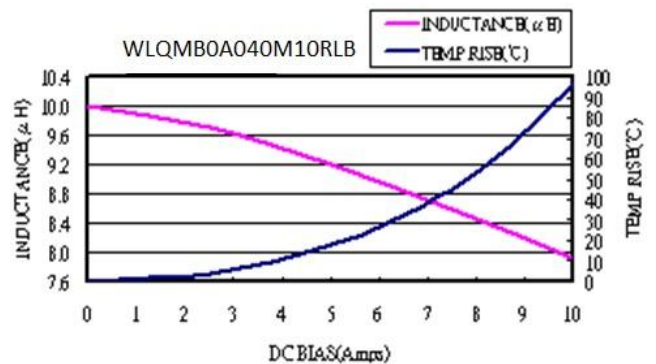
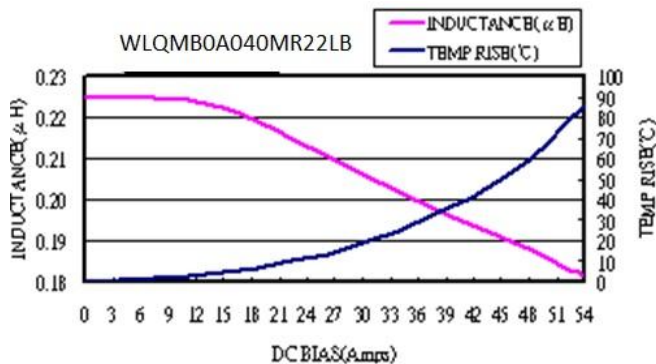


R22/R36/R47/R56/R68/R88/1R0/1R5 - A :  $3.0 \pm 0.5$  · A' :  $5.0 \pm 0.2$

2R2/3R3/4R7/5R66R8/8R2/10R - A :  $1.8 \pm 0.5$  · A' :  $2.3 \pm 0.2$

#### Electrical Specification

Part Number	L (uH)	Tolerance	Measuring Frequency (kHz), 0.25V	RDC Maximum (mΩ)		Heating Rating Current [A] (TYP.)	Saturation Current [A] (TYP.)
				TYP.	MAX.		
WLQMB0A040MR22LB	0.22	± 20%	100	0.9	1.1	35	54
WLQMB0A040MR36LB	0.36	± 20%	100	1.0	1.3	34	41
WLQMB0A040MR47LB	0.47	± 20%	100	1.2	1.4	33	36
WLQMB0A040MR56LB	0.56	± 20%	100	1.5	1.8	25	36
WLQMB0A040MR68LB	0.68	± 20%	100	2.4	2.7	20	32
WLQMB0A040MR88LB	0.88	± 20%	100	2.3	2.5	22.5	30
WLQMB0A040M1R0LB	1.0	± 20%	100	2.7	3.2	19	26
WLQMB0A040M1R5LB	1.5	± 20%	100	3.7	4.2	16	20
WLQMB0A040M2R2LB	2.2	± 20%	100	6.6	7.0	14	18
WLQMB0A040M3R3LB	3.3	± 20%	100	9.5	13	10	15
WLQMB0A040M4R7LB	4.7	± 20%	100	13	15.5	9	14
WLQMB0A040M5R6LB	5.6	± 20%	100	18.4	22	8	12
WLQMB0A040M6R8LB	6.8	± 20%	100	22	26	7	11
WLQMB0A040M8R2LB	8.2	± 20%	100	23.2	27.8	7	11
WLQMB0A040M10RLB	10	± 20%	100	32.9	38	6.3	9



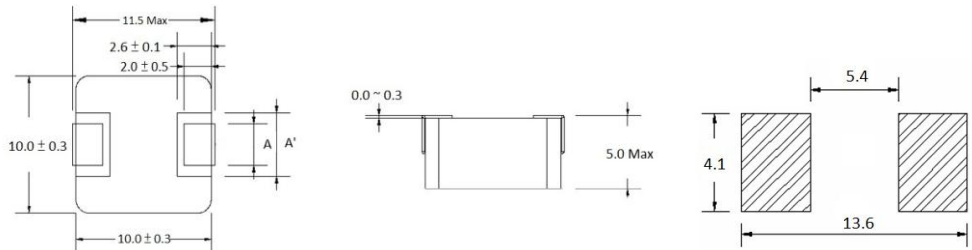
# SMD Molded Power Choke Inductors WLQMB0A050 Series (AEC-Q200)

## SMD Molded Power Choke Inductors WLQMB0A050 Series (AEC-Q200)

### Mechanical Dimensions

(Unit: mm)

WLQMB0A050

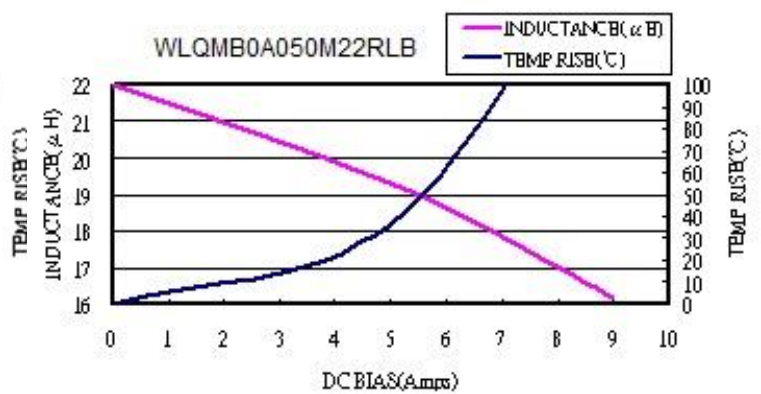
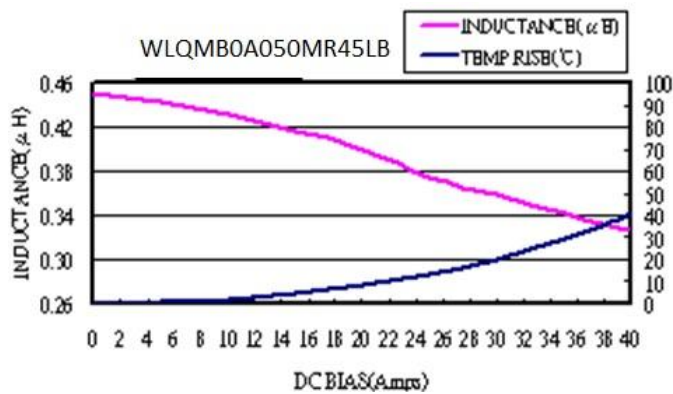


R45/R56/1R0/1R2 - A : 3.0 ± 0.5 · A' : 5.0 ± 0.2

7R0/15R/22R - A : 1.8 ± 0.5 · A' : 2.3 ± 0.2

### Electrical Specification

Part Number	L ( $\mu$ H)	Tolerance	Measuring Frequency (kHz), 0.25V	RDC Maximum ( $m\Omega$ )		Heating Rating Current [A] (TYP.)	Saturation Current [A] (TYP.)
				TYP.	MAX.		
WLQMB0A050MR45LB	0.45	± 20%	100	0.9	1.1	36	29
WLQMB0A050MR56LB	0.56	± 20%	100	1.2	1.4	32	31
WLQMB0A050M1R0LB	1.0	± 20%	100	2.3	2.5	25	25
WLQMB0A050M1R2LB	1.2	± 20%	100	2.5	3	24	21
WLQMB0A050M2R0LB	2.0	± 20%	100	5.3	6.3	14	19
WLQMB0A050M6R8LB	6.8	± 20%	100	13.5	15.5	9	11
WLQMB0A050M7R0LB	7.0	± 20%	100	16.5	20.4	8	12
WLQMB0A050M10RLB	10	± 20%	100	21	25.2	7.2	10
WLQMB0A050M15RLB	15	± 20%	100	35.2	42.2	5.4	8
WLQMB0A050M22RLB	22	± 20%	100	46.5	55.8	4.5	7
WLQMB0A050M33RLB	33	± 20%	100	68.7	82.4	3.6	6



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**August 2015**